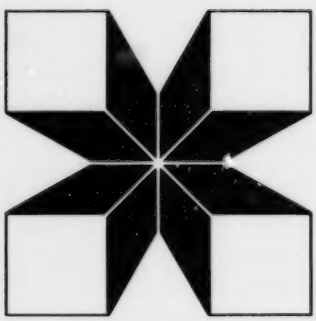
EDUCATIONAL CHANGE IN INDONESIA

A CASE STUDY OF THREE INNOVATIONS

IDRC
CRDI
CIID



CANADA

SHELDON SHAEFFER

The International Development Research Centre is a public corporation created by the Parliament of Canada in 1970 to support research designed to adapt science and technology to the needs of developing countries. The Centre's activity is concentrated in six sectors: agriculture, food and nutrition sciences; health sciences; information sciences; social sciences; earth and engineering sciences; and communications. IDRC is financed solely by the Parliament of Canada; its policies, however, are set by an international Board of Governors. The Centre's headquarters are in Ottawa, Canada. Regional offices are located in Africa, Asia, Latin America, and the Middle East.

Le Centre de recherches pour le développement international, société publique créée en 1970 par une loi du Parlement canadien, a pour mission d'appuyer des recherches visant à adapter la science et la technologie aux besoins des pays en développement; il concentre son activité dans six secteurs : agriculture, alimentation et nutrition; information; santé; sciences sociales; sciences de la terre et du génie et communications. Le CRDI est financé entièrement par le Parlement canadien, mais c'est un Conseil des gouverneurs international qui en détermine l'orientation et les politiques. Établi à Ottawa (Canada), il a des bureaux régionaux en Afrique, en Asie, en Amérique latine et au Moyen-Orient.

El Centro Internacional de Investigaciones para el Desarrollo es una corporación pública creada en 1970 por el Parlamento de Canadá con el objeto de apoyar la investigación destinada a adaptar la ciencia y la tecnología a las necesidades de los países en desarrollo. Su actividad se concentra en seis sectores: ciencias agrícolas, alimentos y nutrición; ciencias de la salud; ciencias de la información; ciencias sociales; ciencias de la tierra e ingeniería; y comunicaciones. El Centro es financiado exclusivamente por el Parlamento de Canadá; sin embargo, sus políticas son trazadas por un Consejo de Gobernadores de carácter internacional. La sede del Centro está en Ottawa, Canadá, y sus oficinas regionales en América Latina, Africa, Asia y el Medio Oriente.

This series includes meeting documents, internal reports, and preliminary technical documents that may later form the basis of a formal publication. A Manuscript Report is given a small distribution to a highly specialized audience.

La présente série est réservée aux documents issus de colloques, aux rapports internes et aux documents techniques susceptibles d'être publiés plus tard dans une série de publications plus soignées. D'un tirage restreint, le rapport manuscrit est destiné à un public très spécialisé.

Esta serie incluye ponencias de reuniones, informes internos y documentos técnicos que pueden posteriormente conformar la base de una publicación formal. El informe recibe distribución limitada entre una audiencia altamente especializada.

IDRC-MR270e
October 1990

EDUCATIONAL CHANGE IN INDONESIA

A case study of three innovations

by
Sheldon Shaeffer

91-01421/

Material contained in this report is produced as submitted and has not been subjected to peer review or editing by IDRC Communications Division staff. Unless otherwise stated, copyright for material in this report is held by the author. Mention of proprietary names does not constitute endorsement of the product and is given only for information.

ACKNOWLEDGEMENTS

I wish to express my gratitude to the assistance provided me during the preparations for my work in Indonesia, the actual research there, and the writing of this report. Of particular help were three individuals especially knowledgeable about the innovations examined: Marsandi Wahyowidodo for PPSP, Haris Mujiman for PAMONG, and Agus Tangyong for CBSA. Each of them made available an extensive literature about the projects, filled in lengthy outlines concerning the development and results of the innovations, and commented on early drafts of the report.

Dr. Moegiadi, Secretary of the Educational and Cultural Research and Development Board of the Ministry of Education and Culture (Balitbang Dikbud), was instrumental in making the arrangements which made this report possible. Both he and Dean Nielsen were important sources of information, comments, and divergent opinions in regard to the case studies. Many other policy-makers, planners, researchers, lecturers, headmasters, and teachers -- in Surabaya, Malang, Turen, Surakarta, Karanganyar, Cianjur, Mataram, and Jakarta -- provided further information, opinion, and materials essential to this work. Soegianto Sastrodihardjo was particularly helpful in assisting with fieldwork in East Java and Nusa Tenggara Barat.

I wish also to thank the International Development Research Centre (IDRC) which provided the professional development leave and funding for this project and to my colleagues in the Education Program of IDRC who filled in for me during my absence. I am alone responsible, of course, for any errors, omissions, biases, and conclusions in the report.

Sheldon Shaeffer
Paris, France
August, 1990

TABLE OF CONTENTS

		Page
I.	INTRODUCTION	1
	A. Definitions	3
	B. Approaches to Change	4
	C. The Change Process	5
	D. Gateways and Barriers to Change	10
II.	INDONESIAN PRIMARY EDUCATION	17
III.	PROJECT PERINTIS SEKOLAH PEMBANGUNAN (PPSP)	20
	A. Background and Project Initiation	20
	B. The Design of the Project	21
	C. Implementation of the Project	26
	D. Evaluation of PPSP	30
	E. Outcomes of the PPSP	32
	F. Reasons for the Outcomes of PPSP	33
	G. Summary	38
IV.	PENDIDIAKAN ANTARA MASYRAKAT, ORANG TUA DAN GURU (PAMONG)	39
	A. Background and Project Initiation	39
	B. The Design of the Project	40
	C. Implementation of the Project	43
	D. Evaluation of the Project	52
	E. Outcomes of PAMONG	53
	F. Reasons for the Outcomes of PAMONG	56

		Page
V.	STUDENT-ACTIVE LEARNING/PROFESSIONAL SUPPORT SYSTEM (CBSA-SPP)	65
	A. Background and Project Initiation	65
	B. The Design of the Project	66
	C. Implementation of the Project	71
	D. Evaluation of the Project	76
	E. Outcomes of the Project	77
	F. Reasons for the Outcomes	78
VI.	COMPARISONS AMONG THE INNOVATIONS	85
	A. The Nature and Content of the Innovation	85
	B. The Innovation Strategy	88
VII.	CONTINUING PROBLEMS OF EDUCATIONAL CHANGE	93
	A. The Climate and the Culture of the Bureaucracy	93
	B. The Life History of an Innovation	96
	C. Disagreements over Basic Definitions	98
	D. Indonesia's Heavy Hands	102
	CONCLUSION	104
	REFERENCES	105

I. INTRODUCTION

There is nothing easy about the process of change. Nowhere is this more the case than in education, yet in no other field are innovation and reform more needed. Improving the quality of education, both in and out of formal schools, is a major goal of most nations of the developed and developing worlds. It is also a most difficult and frustrating task.

Education receives high priority as an area of change for many reasons. Politically, it is a valuable "good" which can help to satisfy a large and growing public demand for greater access to the benefits of development. Economically, it is an expensive service, absorbing a large percentage of private and public budgets and gross national products. And in terms of development, it has been shown to contribute to higher productivity; better health and nutritional status; the reduction of female fertility; an increase in cognitive growth and of various, usually "positive", non-cognitive attributes; and greater participation of marginal groups in social and political affairs (Lewin 1985: 118).

Most developing countries have concentrated their efforts in the last decade or two on expanding the quantity of available education. It is now becoming clear that such an effort has generally led to the creation of two systems of education -- one, often based on colonial systems, of high quality, public or private, in urban, upper- and middle-class areas; and another, in rural or marginal urban areas, serving poorer segments of society. The former system is small and characterized by good facilities, well-trained teachers, low teacher-pupil ratios, and strong community support; the latter is usually the reverse. Thus, as the quantity of available education has increased, its average quality has decreased. From a national perspective, a decline in quality (i.e. achievement) has begun to offset the long-sought increase in quantity (enrollment). For many nations, therefore, it appears likely that "the need to provide pupils with the opportunity to achieve in school may overtake the provision of opportunities to enter school as the priority item on the educational development agenda" (Verspoor 1989': 2).

For many reasons, however, improving the quality of education is not an easy task (Dalin 1978, UNDP/UNESCO n.d., Fullan 1982, Middleton et al, 1987). For one, there is a high degree of uncertainty about the nature of educational problems and their solutions. Despite extensive research and experimentation (much of it, unfortunately, unsystematic), there is still little clarity about what makes effective teaching and efficient learning. One reason for this is that factors which influence educational achievement appear to change over time and have different strengths in different contexts (Fullan 1982). Also, changing an education system is complicated by its close links to the economic system (i.e., education as an apportioner of future economic opportunities) and to social and political systems (as the inculcator of particular values, beliefs, and ideologies).

Reforming education also means altering peoples' behaviours and attitudes and intervening in the clearly idiosyncratic nature of teaching and in what Huberman characterizes as the multidimensionality, simultaneity, and unpredictability of the interaction of teacher and pupil in the classroom (cited in Fullan 1982: 27). Attempts to intervene in the classroom are also made difficult by its position within a complex bureaucracy. Schools are part of a network of central, regional, and local interests (Lewin 1985); heavily dependent on complementary institutions and sub-systems (training colleges, examination systems, curriculum development centres); and yet often linked only weakly, at the end of a long chain of command, to this bureaucracy. Such a "loosely-coupled" relationship (Cohn and Rossmiller 1987) makes problematic the success of any top-down reform at the school level.

Yet a further difficulty in reforming education is the problem of how to measure its success. Education itself -- and the reform process -- has a lengthy internal cycle. The impact of particular inputs is often visible (and less often measurable) only after a long process of complicated cause-effect relationships. Few "measurers" (and even fewer decision-makers) have the patience to wait for such results.

Yet it is important that educational change succeeds, at least more often than is currently the case. "When reforms fail, resources have been wasted and there is a reckoning that has to be paid. There are the obvious resource costs of money, people, time and equipment. More importantly, there are social costs. When innovations begin, hopes are raised, enthusiasms engendered, and actions motivated. But then if failure follows, the major products become disappointment, disillusionment, suspicion, and despondency. The original problem still remains unsolved but additional new ones have been created as well" (Adams 1981: 3-4).

This paper will attempt to identify ways in which the process of educational change can more frequently succeed. It will analyze over fifteen years of such change in Indonesia, the third largest nation in the developing world, by examining three major innovations: the Development School Project (PPSP), Project PAMONG, and the so-called "Cianjur" or Student Active Learning Project (CBSA). An assessment of how and why each of these innovations began, developed, and "succeeded" or "failed" will lead to conclusions about both the changing nature of educational reform in Indonesia and the factors which influence the outcomes -- anticipated or otherwise -- of the change process.

A. Definitions

These are no clear, generally acceptable definitions of educational innovation, reform, and change. Most commonly, "innovations" are seen as being more discrete and technical in nature, limited to particular locales, subjects or practices, while "reforms" are more broadly defined and more widely applied. Reforms, often seen as a cluster of innovations, usually are meant to affect the system as a whole, or an important part of it, with clear implications for teaching and learning practices and with purposes related to the general nature of society and the role of education within it.

Given the unclear boundary between an innovation and a reform, the terms are often used interchangeably both in the literature and in practice (Verspoor 1989, Weiler 1979, Adams 1981). More recently, the term educational "change" has become more useful (Fullan 1982), being both vaguer in regards to scope and content and more precise in regards to the importance of the process. We will use the terms in this way: "change" to refer to the process of improving education, and innovation or reform (interchangeably) to refer to a particular attempt at such change.

A recent major review of educational change has defined it as "planned improvement in the educational system aimed at teaching practice, learning resources, or structure and organization with a view to enhancing student achievement" (Verspoor 1989: 4). For our purposes, this definition will be altered in several ways. First, we are concerned more broadly with change aimed at teaching and learning processes; i.e., the interaction among people (or media) who are "teaching" and those who are "learning" (not necessarily defined as teacher and pupil). Secondly, we will look at changes in all resources brought into the learning situation: the content and structure of curricula, the repertoire of teaching and learning methods, texts and other technical resources, and the attitudes and skills of (and the training provided to) those who are teaching. Thirdly, we will examine possible changes in the structure, organization, and administration of education at the local level (i.e., the school and classroom), and at district and national levels, as well as relations with complementary institutions responsible for examinations, curriculum development, teacher training, and research and development. And lastly, we will also consider changes in education related most broadly to national policies in regard to internal efficiency (educational wastage, levels of education, promotion policies) and relevance (or external efficiency).

B. Approaches To Change

The process of educational change can be approached from a number of different perspectives and styles based on different assumptions concerning both how such change occurs and, in fact, how education "happens". A particularly useful distinction is made by House (1979) in describing technological, political, and cultural change. The first, similar to what others have called the "logistic" (Morris 1985) or the "technocratic" or "infrastructural" model of change (Verspoor 1989), sees both the teaching process and particular innovations as technologies based on scientific principles and explicit knowledge. Such technologies can be improved (i.e., their productivity increased) rationally and empirically through a systematic process of research, development, and dissemination. Discrete goals and tasks can be specified; inputs identified, designed, delivered, evaluated, and refined; and the newly proven technologies then standardized and widely applied. Such an approach usually concentrates on relatively specific inputs -- new materials, media, methods, etc. -- and often in ways which attempt to remove the idiosyncratic influence of unevenly trained and skilled teachers.

Such an approach has often failed, because -- for reasons described earlier -- educational processes are not necessarily systematic, policy decisions concerning them are not necessarily rational, nor actors within them necessarily predictable. The context surrounding the education system and its quality frequently do not permit rationality to operate, nor do "reasonable" people necessarily agree on the goals or tasks of education. This has led to a more political, less empirical approach to change which clearly recognizes the inevitability of competition and conflict over educational goals and over the distribution of educational resources and benefits. Education as a "good", rather than as a scientific process, becomes important and the art of reform becomes a political process related to education's presumably powerful role in society.

A more recent approach to change emphasizes cultural factors. Conflict still exists, but is based on the particular shared norms and values of different sub-groups within society and on what the processes of change and of education mean to each group. In this approach, teaching is more a "craft" than a technology, based on experiential and tacit (rather than on scientific and explicit) knowledge; change is an evolutionary process that comes about through interaction and compromises at the school level rather than through technological planning or political conflict at the system level. In such an approach, the distinction between planning (at the top) and implementation (at the bottom) is blurred, and the formal "adoption of change" by the system is less important that the real implementation of the change by teachers in classrooms (Verspoor 1989).

C. The Change Process

As a result of the work of House and others, it is now somewhat clearer how change occurs (or why it doesn't), in what stages, and with what possible results. Though the literature differs in detail, most writers recognize several stages or steps in the change process (Verspoor 1989, Adams 1981, Havelock and Huberman 1977).

1. Initiation covers the events leading up to, and including, the decision to try out an innovation, usually in an experimental way. This involves the identification and diagnosis of the problem or the issue being addressed, the decision to try something "new" rather than merely improve the "old", and the introduction, consideration, and eventual selection of new ways to try to solve the identified problem. The last need not be specified in great detail; in fact, premature closure on particular solutions may lead to inflexibility in later stages of development (Adams 1981). Of interest at this stage are who takes the lead in identifying problems and proposing solutions (parents or teachers, bureaucrats, researchers, policy-makers, foreign consultants) and how this is done (through research, high-level consultations, public forums, reviews of development literature, or foreign visits or study).

2. The design and planning stage of the innovation is of critical importance, in terms of both how it is done (the planning process) and what is the result (the actual project design). Of special interest in the planning process are the "style" or approach used by the planners, their understanding of how educational change occurs, and the pedagogical assumptions and concepts which lie behind the changes they suggest. Here we return to technological, political, and cultural approaches to change and to the basic question of where experience and wisdom in regard to the improvement of education are assumed to lie.

Of importance also is the extent to which planners at a very early stage take into account a number of contextual factors and constraints such as:

a) the complexity and stability of the national environment;
b) political and ideological goals of the system;
c) broader, longer-term issues and plans of the education system;
d) the nature of the educational bureaucracy and of its readiness for reform (Havelock and Huberman 1977);
e) general cultural norms related to the new ideas and to the management style needed to implement them;
f) the needs and demands expressed by teachers, the culture and climate of schools and classrooms, and the extent to which schools have the power to "make or break" an innovation; and
g) the availability of adequate budgets, trained (or trainable) personnel, and other needed educational resources.

The result of this planning process is a specific innovation design, presumably with objectives, components, and some form of experimental pilot phase. Objectives can be analyzed in terms of their content, their clarity and precision, their complexity and "multi-endedness", their ambitiousness in geographic and institutional coverage, their conceptual validity and soundness, and, ultimately, the extent to which they reflect technological, political, or cultural approaches to educational change.

The innovation's particular components can also be analyzed as to content and as to the changes expected in teaching and learning processes and in attitudes (especially those of teachers), available materials and resources, administration and organization at the school and system levels, and broader national policies.

Related to this question of design are several important concerns. These include:

a) how different the expected changes are in respect to current practice;
b) how elaborate and detailed the original design is in terms of budget and personnel required, the sequence of steps needed, etc; and,
c) how rigid or flexible the design is; i.e., the extent to which the planners consider the need (and even the inevitability) from the beginning for flexibility, adaptation, and "contingency management" (Middleton et al 1987, Rondinelli et al 1989) during the change process.

The final aspect of the innovation's design is some kind of try-out or experiment needed to develop and test the innovation. Questions here relate to its expected duration, geographic scope and location, magnitude, and the nature of the experiment itself.

Once the original design of the innovation has been completed and approval has been gained to try it out, the most complicated phase of the educational change process -- implementation -- begins.

3. Implementation is the process of putting an innovation into practice in classrooms and schools (Verspoor 1989) -- of devising a detailed implementation strategy based on the project design, of assembling needed resources, of establishing needed procedures, and finally of managing all of these for the purpose of facilitating the optimal level of adoption, acceptance, and use of the innovation (Hurst 1978). Though many factors help to determine the success or failure of this process (see below), Verspoor (1989) considers three to be of greatest importance: the degree of environmental uncertainty surrounding the effort, the degree of innovativeness of the reform in light of both the context of educational development and current educational practice, and the balance between such innovativeness and the capacity or readiness of individuals and institutions to take it on.

The implementation strategy is the plan adopted for the development of the innovation or reform. This includes the detailing of the original project design in terms of the priorities and sequencing of particular components; organizational structure, administrative procedures, and a division of labour and responsibility among participating units; and the resources needed for implementation. Verspoor's analysis of change (1989: 50) describes four different kinds of possible implementation, each with implications for the details mentioned above. These are:

a) progressive innovation -- implementation of a number of changes in a large geographic area, each rather modest in itself but when taken together resulting in considerable change over time;

b) incremental expansion -- "implementation of ambitious innovations in a gradually increasing number of schools";

c) discrete change -- "the traditional project approach which implements the change program in a limited number of schools without clearly specified generalization objectives"; and

d) permanent pilot -- "programs that aspire to national coverage and show promising results in the pilot phase, but do not manage to mobilize enough support and/or resources to embark on nationwide application".

Whatever the strategy chosen, two aspects of its style are important -- the extent to which the implementers either: (1) require fidelity to the original design and mandate the following of particular procedures and/or the attainment of particular outcomes, or (2) permit flexibility and local adaptation. The choice between fidelity and flexibility relates to whether educational change is seen largely as a technocratic and rational, or cultural and interactive, process.

The inputs and resources needed, and eventually provided, for the implementation of the innovation at the individual, school, and system level are of three kinds. Tangible resources include funding from internal and external sources; facilities, equipment, and materials; adequately trained personnel, from implementers down to teachers; logistical support (procurement and distribution); and local and/or foreign technical assistance. Another needed resource is the capacity of implementing individuals and institutions to manage the project and develop the innovation, to monitor progress and carry out research and evaluation, and to assess and adapt the project -- in often unanticipated ways -- to contextual and cultural constraints and changes (Verspoor 1989). A final needed resource is moral support -- stable commitment to the project from the bureaucracy, from local officials and teachers, and from communities, parents, and pupils. Because of the often weak linkage between national reforms and classroom change and the need ultimately to alter the attitudes and behaviours of those working in

schools, a consensus on the innovation's norms and goals at the school level is imperative (Cohn and Rossmiller 1987, 1985, Dalin 1978).

Appropriate procedures must also be established in an implementation strategy. These include procedures to obtain needed resources at the right time and of the required magnitude; to coordinate often complex management systems (Middleton et al 1987); to carry out formative monitoring, research, and evaluation; to provide time to reflect on the project's progress and possible solutions to its problems; to inform practitioners, decision-makers, and opinion leaders about the project (even better, to involve them in it from the beginning) and so attempt to mobilize demand, enlist support, and ensure that they feel some "ownership" of the project; to collaborate with, and recognize the contribution of, teachers and officials in the appraisal and refinement of the innovation (Hurst 1978, Lewin 1985); to train and upgrade implementing personnel and strengthen key implementing institutions (Verspoor 1989); and to collaborate across the bureaucracy with other implementing units.

A final and critical aspect of project implementation is the structure, nature, and evolution of the management of the innovation. Who is in charge of what aspects of the process, with what amount of responsibility and autonomy, with what kinds of linkages to other responsible agencies, and how these change over time, for what reasons, and with what results are all important questions in the history of any innovation. Of particular importance are the location of ultimate administrative control and of creative adaptation (not necessarily in the same office) and the response made by implementers to problems encountered during the implementation process. What happens if problems related to the nature of the innovation itself or to contextual constraints occur? Is the innovation simplified or management capacity increased -- or neither? To what extent is there willingness to learn and re-design the innovation while safeguarding its core (Middleton et al 1987, Dalin 1978), or the ability to predict, and then take measures to counteract, reasons for low adoption (Hurst 1978)?

4. Evaluation is the process by which an innovation and, more generally, the process of educational change are assessed. The primary question is how research and evaluation operate within the project -- the role they play, in what manner, and with what results. To the extent that monitoring of project implementation and formative evaluation of results have occurred in earlier phases of the project, this section refers particularly to a more summative assessment of the project's successes and failures. What achievement gains were made and how significant are they given the experimental conditions? How effective and efficient was the delivery of needed inputs? How large a scope and coverage were achieved? How widely and correctly used were the innovation's various components and what actual changes occurred in teaching and learning? To what extent were teachers' attitudes towards innovation and continuous school improvement altered (Fullan 1982)? What were the

estimated costs of the project, both developmental and routine? How were the implementing institutions changed by the projects? And what other outcomes, anticipated or not, were achieved?

As important, perhaps, as the actual outcomes are the reasons for them. We will look at this in detail below, but in short, the literature discusses five sets of characteristics which help determine the success or failure of reform. These include:

a) characteristics of the context in which the innovation is located -- the stability and complexity of the cultural, economic, political, social, and macro-educational environments (Middleton et al 1987);

b) characteristics of the implementation strategy and the implementing institutions, including the availability of resources, the capacities of participating institutions and their readiness for reform, and the ability of schools of various levels of quality to implement the reform (Weiler 1979, Lillis 1985);

c) the characteristics of the "actors" in the process (planners, implementers, teachers) as these relate to psychosocial characteristics, skills, and incentives (Hurst 1978);

d) characteristics of the innovation itself (also Morris 1985 and Verspoor 1989) as they relate to its complexity, costs, feasibility, validity, scale, and conformity with current practice, bureaucratic and cultural norms, and economic and political interests; and

e) characteristics of the innovative process (Lillis 1985), including its timetable, the conception of change on which it is based, its administration and monitoring, and the balance it achieves between external and internal "ownership", between local and central control, between a focus on refining structure and operation and one on enriching content, and between symbolic and real change.

5. Institutionalization (routinization, incorporation) is the final stage in the educational change process -- "the sustained application and integration of the innovation into regular classroom and administrative practices" (Verspoor 1989: 8). Many innovations never reach this stage; they are diverted, altered, halted, or simply disappear before such integration can occur. How, when, by whom, and for what reasons such a decision is made are critical questions in the analysis of whether educational change succeeds or fails. It is here that the results of the innovation (whether formally evaluated or not) come together with the various factors of context, actors, and process to determine whether the new materials, methods, attitudes, behaviours, etc., die -- or if they live, in what shape and form. It is here, too, that some final process of persuasion occurs, from innovator to decision-maker: a marshalling of evidence (real or rhetorical), a collecting of

references, a listing of actual or potential "applications", an upsurge of gamesmanship (Nielsen and Cummings n.d.). Whether such efforts "work" (and the final decision is often less clear than the evidence presented) will determine if and how the institutionalization stage is carried out.

If it is, then it is useful to know what kind of dissemination strategy is adopted, what financial and moral resources are available to support the reform (especially after it moves from developmental to routine status), how it is managed, and what procedures of funding, training, feedback, and local adoption are established to ensure its successful replication. Two particular methods of institutionalization include the laissez-faire approach, where the innovation is allowed to diffuse "naturally", through informal channels (publicity, word-of-month, etc.), and the more directive, legislative approach via formal regulations. The former takes longer and often results in more variety of outcomes; the latter often leads to costs in regards to organizational efficiency and psychological stress and the need to negotiate formally with groups whose interests are being impinged upon (Adams 1981: 252-3).

D. Gateways And Barriers To Change

Because an understanding of why and how innovations succeed or fail is so critical to the analysis of educational change, it is important to spend more time here looking at the five sets of characteristics which help to determine the fate of educational reform (Rondinelli et al 1989).

1. Characteristics of the Context of Reform

In most general terms this set of characteristic refers to the adaptive capability of the context in which the reform is implemented -- at the level of the society as a whole, the school system, and the individual school and classroom. Innovations are not isolated processes; they have ripple effects throughout the systems they impinge upon. Innovators must understand how these systems effect the speed, direction, and magnitude of educational change (Adams 1981).

At the most macro-level, several factors are important. The stability and complexity of social, economic, and political systems influence the ease with which innovations can be developed, tested, and disseminated. It can be argued that the more complex and less stable these systems are -- the more uncertain their future -- the more likely that reforms will fall prey to bureaucratic and political conflict, institutional cowardice and confusion, the lack of communication across sub-systems, indecision, and the inability of any institution to provide firm commitment to reform (Middleton et al 1987). On the other hand, a society and an education system in considerable flux may also be receptive to considerable change, perhaps of a radical and/or populist nature (Adams 1981, Havelock and Huberman 1977).

Other contextual factors are also important; socio-cultural norms and historical traditions may influence the willingness of individuals and institutions to take risks, to share information and power, and to resolve conflicts. Geographical considerations may effect the ease with which innovations spread; economic and financial conditions as well as infrastructural weaknesses may simply make particular reforms impossible to achieve; and the presence of competing reforms and innovations, in and out of the educational system, may drain off energy and resources from one to another (Havelock and Huberman 1977, Nielsen and Cummings n.d.).

At the school level another set of contextual factors looms large. Many of these derive from those mentioned above: the complexity of school organization and the stability of its personnel, inter-school conflict, the lack of school autonomy and thus of its ability as an institution to support reform, the inappropriateness of cultural norms (such as the difficulty of headmasters supervising trained teachers), and the poor financial condition of teachers.

2. Characteristics of Organizations

This set of characteristics relates closely to those described above (Weiler 1979). Bureaucracies and institutions carry their own socio-cultural norms and reflect certain levels of stability, complexity, flexibility, and "readiness" which influence the fate of reform (Nielsen and Cummings n.d.). Other characteristics relate to the ability of specific organizations to implement educational change. These include the resources available to them, in terms of funds, personnel, and the time and energy needed for innovation; their actual and perceived legitimacy to carry out reform; the structures and procedures which effect their management style; and, ultimately, their capacity to process information, resolve conflicts, evaluate progress, encourage feedback up and down the chain of authority, and train personnel to the required skills and competencies. Of critical importance in this process is the consistency, stability, and skillfulness of leadership in supporting and eventually "selling" the reform (Nielsen and Cummings n.d.).

Such abilities are required not only of the implementing agency but also of those institutions whose contributions and cooperation are needed for any reform to succeed. These include planning and policy institutions which design longer-term policies and complementary parts of the educational system such as curricula, textbooks, and examination procedures; support institutions concerned with logistical problems such as the delivery of resources, the payment of teachers, and the building of schools; and operating institutions, particularly important in the eventual dissemination of reforms, such as district-level education offices, line directorates, teacher training institutions, and schools (Verspoor 1989).

It is at the school level where most attention has recently been turned. "The principal role for educational reform lies within the individual schools, in relation to the general educational climate of the school and the appropriate allocation of resources" (Cohn and Rossmiller 1987: 26-27). The recognition of the weak links between reforms proclaimed at the top of the system and their implementation at the bottom has reinforced the call for an attempt to build a shared set of values and norms within the school that will foster and support professional development and change. Thus, improvement is a process of developing new skills, behaviors, and beliefs which require active leadership at the school level, and ongoing technical and social support under organizational conditions that promote interaction and the pursuit of common goals (Fullan 1985).

Quoting J. W. Little, Fullan discusses school-level factors which encourage school improvement: continuous, concrete, and precise talk among teachers about teaching practice; the frequent observation and evaluation of each other by teachers and administrators; and their collaboration in planning, designing, evaluating, and preparing teaching materials -- in other words, teaching each other the practice of teaching (1985: 395). It is the very uneven -- and, in some systems, almost non-existent -- practice of such activities in schools which makes the dissemination of innovations often so difficult; the inability, in other words, of many "average" schools to implement innovations designed for schools at quite a different level (Lillis 1985).

3. Characteristics of the Adopters - the "Actors"

Supportive contexts and reform-minded bureaucracies will go nowhere if the intended adopters (or adapters) of the innovation are unable or unwilling to change. For the individual actor innovation implies new ways of thinking and acting, new skills, and new ways to gain satisfaction; requires time and energy and perhaps some risk; and leads frequently to anxiety and uncertainty (Fullan 1985: 396). Innovations are, by definition, "assaults on the established forms of meaning and on established norms of behavior" (Adams 1981: 265), and because peoples' basic conceptions of themselves, their sense of competence, and their occupational identity are involved, "all real change involves loss, anxiety, and struggle (Fullan 1982: 25). Very objective factors -- the poor economic conditions which decrease motivation and force the teacher into second and third jobs, the simple lack of time to cover a complex and lengthy syllabus, inadequate education and poor pre-service training -- also create some resistance to change especially when there appears little hope of immediate return. But also important are psycho-social characteristics (Hurst 1978), such as innate, inbred conservatism (which often bears the brunt of the blame for failed reforms), and the unwillingness to share new knowledge (which is power), to open oneself in an interactive manner to supervision and criticism, to assume leadership, and to go against cultural norms of status and hierarchy.

The greatest individual barrier to change is the difficulty of genuinely and permanently altering people's long-engrained beliefs and values; "... it is possible to change 'on the surface' by endorsing certain goals, using specific material, and even imitating the behaviour without specifically understanding the principles and rationale of the change. Moreover, in reference to beliefs, it is possible to value and even be articulate about the goals of the change without understanding their implications for practice ..." (Fullan 1982: 33). Ongoing technical assistance and psychological support, the gradual and incremental development of new skills, the attempt to promote the genuine cognitive acceptance of an innovation's purpose and rationale, and the organization of conditions within schools and among peers which encourage the openness to reform might help to counteract some of the above characteristics, but they will likely remain the most frustrating and intractable of any of the barriers to change.

Characteristics of other actors can also be of important in the change process. Over-zealous innovators, insensitive technocrats, and the unrealistic academics are all types of implementers which can effect negatively the process of educational change. The stronger one's commitment to change, the more difficult it is to exchange one's "reality" with that of the actual implementers of the change (Fullan 1982).

4. Characteristics of the Innovation

Any one of the above factors may stop reform dead in its tracks, but the extent to which educational change succeeds or fails is very often determined by the nature of the innovation itself and of the process adopted to implement it (Weiler 1979, Morris 1985, Hurst 1978). The characteristics of the innovation itself may be broken down in several ways:

a) The complexity of the innovation is of particular importance. This relates to several issues concerning the number of different (and different types of) institutions and individuals affected; the complexity, "multi-endedness", and precision of the innovation's goals and purposes; the levels and varieties of new tasks and skills being promoted (and whether they are cumulative and additive); and the extent to which these new skills can be clearly expressed and transmitted in linear sequences controlled by explicit rules (Middleton et al 1987, Hurst 1978). While complexity does not ensure failure, it makes more necessary both the clear definition of an innovation's components and an incremental implementation strategy (Fullan 1982). Otherwise, the result is an innovation too large and ambitious for available resources and capacities -- what Havelock and Huberman call the "alternative of grandeur syndrome" (1977: 231).

b) Cost is also an important factor. If the innovation is too expensive, or is seen by decision-makers as being too expensive, its dissemination will be at severe risk. Other "costs", of course, are also important. Conflict between individuals and institutions for the control of innovations (and their resources), time taken from other tasks in order to develop an innovation and, as above, the psychological burden of change and uncertainty can all make educational reform an expensive proposition.

c) Innovations must also be technically valid, practically feasible, and, eventually, scientifically credible. There should be some optimism that an innovation will produce expected and observable outcomes, at least in an experimental setting, and then some evidence that it can be implemented in the larger population of schools for which it is intended (Verspoor 1989, Adams 1981, Hurst 1978). It should both have "merit" to policy-makers and be of clear "worth" to teachers (Morris 1985: 11).

d) Innovations also need to conform, at least to some extent, to various aspects of the context in which they are developed: to bureaucratic norms, to the felt needs of adopters and to their current or potential capacity to change, to current practice of teaching and learning, to dominant economic and social interests, and to indigenous models and structures of teaching and learning -- indigenous not only to the national context but to that of the schools and communities in which the reform is meant to operate. Innovations can neither be value- nor context-free (Lillis 1985) and so must make some adaptation to local conditions. Too much conformity to current conditions and practices, of course, will negate the purposes of the intended reform, but too great the rhetoric about reforms will lead to unreachable expectations, and too large a gap between the intended changes and available resources will create pressure to reduce the changes to "digestible" proportions (Havelock and Huberman 1977: 19, Adams 1981). As Fullan says, "large plans and vague ideas make a lethal combination" (1982: 103).

e) A final, important characteristic of the innovation itself is its scope, the sheer number of institutions and individuals expected to be affected by the reform and the geographic coverage which they represent. Though not proportionately related to the success of an innovation, clearly the quantity of people and places that must be reached will have an impact on both its implementation strategy and its results.

5. Characteristics of the Innovation Process

The most complex factor to analyze in the process of educational change is the strategy adopted (or realized) in the implementation of the change: the innovation process itself. Several closely related variables are of particular importance:

a) Of most practical importance is the organization and management of the innovation process. Reforms will succeed to the extent that the simplicity or complexity of the design matches the capacity of the system to carry it out; that the expected changes in structure, processes, and behaviours are eventually clearly outlined and understood; that adapters can be trained to adopt and use the innovation; that adequate resources can be mustered and kept intact; that demand and support can be mobilized; that communication and feedback both are logistically possible and can be promoted up and down and across the system; that such feedback reveals both the extent to which the innovation is being implemented and how it might best be reformed; and that timescales and "growth gradients" of the reform (the speed of dissemination) are realistic (Lillis 1985).

The training of adapters, particularly of teachers, is of crucial importance. Considerable evidence has been collected regarding what kind of training is most useful: training which is permanent and locally available, with an effective system for supervision and support at the school level, adjusted for content to the teacher's level of knowledge and experience, and, for the purposes of enhancing teacher motivation and commitment, with the teacher's active participation in implementing and adapting, if not actually planning, the reform (Fullan 1982, Verspoor 1989). Single workshops, training without follow-up, professional development courses divorced from the life of the organization have little or no impact because they do not provide the ongoing, interactive, cumulative learning necessary to develop new skills, behaviours, and conceptions. Only this can "crack the wall of privatism" which so isolates a teacher within an education system (Joyce quoted in Fullan 1982: 292).

b) Related to these criteria is <u>the choice made, or the balance achieved, between quite conflicting styles of management</u> -- styles which may or not be appropriate in a given context. The choices include the following:

1) <u>"Ownership"</u>: An innovation developed at one level of the system, or largely by external (foreign) resources, will necessarily possess their values, assumptions, and knowledge rather than those of the eventual users. The risk is that within the innovation process, the sense of ownership, of moral commitment to the reform, will be lacking (Lillis 1985, Nielsen and Cummings n.d.).

2) <u>Control</u>: Similarly, the locus of administrative control and creative adaptation during the innovation process can lie with central or with local institutions; where it lies within a particular context will be an important determinant of the innovations's fate (Adams 1981).

3) Adaptability: It is now commonly assumed that very few innovations succeed with their original objectives (Adams 1981). Though some discrete innovations may succeed through what Fullan calls the "fidelity approach", where new materials and methods already exist and are meant to be adopted as is, a more evolutionary approach, wherein users adapt the innovation as they work with it in their own context, generally appears more successful (1982: 31). The extent to which flexibility and adaptation are anticipated from the beginning, and then permitted to flourish, is critical to the success of reform. "For implementation to succeed, it is necessary for modifications to the original innovation to occur, and for the adopting institution to modify itself" (Hurst 1978: 61). Some core of the innovation must be safeguarded (Middleton et al 1987, Dalin 1978), of course, but clear decisions must also be made as to what aspects of the innovation (e.g., procedures and ultimate outcomes) will be allowed to differ from site to site and which will need to be standard (Verspoor 1989). Whatever amount of "creative adaptation" is permitted, especially vis-a-vis the expectations of foreign donors (Nielsen and Cummings n.d.), ways must be designed to permit it to happen -- through particular kinds of monitoring and feedback, participatory planning, etc.

c) Underlying all of these issues related to the characteristics of the innovation process is the nature of the "philosophy" of change which dominates the innovators and the innovation. The conceptual framework upon which change is built will be reflected in the nature of the innovation itself, in the innovation process, and, eventually, in its fate. Two dimensions are important in this regard.

1) Whether change is seen as primarily technological and logistic, or cultural and interactive. The choice made will have a profound effect on who is involved in the process of reform, on what aspects of it are emphasized, and on the balance struck between refining structure and operation and enriching content.

2) Whether the process of change is theoretical and rhetorical or urgent and real. The choice made here, by those who have power in a given society, will determine the extent to which the reform is, or becomes, merely symbolic -- full of publicity and activity but empty of meaning and impact.

II. INDONESIAN PRIMARY EDUCATION

The Indonesian education system, particularly at the primary level, faces a gargantuan task. In a context of 170 million people, composed of 250 language and dialect groups and distributed in over 13,000 islands stretching over a distance of 3,500 miles, the primary system was charged with the objective of achieving universal enrollment of the 7-12 age group by the end of the last five-year plan (REPELITA IV 1984-1989). This was virtually achieved with an estimated 26,000,000 children of that age group now in school -- over 29 million if underage and overage children are included. To service this number of children, 1.3 million primary school teachers work in 170,000 schools, both public and private, secular and Islamic (Ministry of Education and Culture 1987). Approximately 90% of these teachers have the required certification (three years of training past lower secondary school).

This all has been achieved in a country whose per capita gross domestic product is approximately US$500 and where only 4 percent of this GDP (20 percent of the national budget) is devoted to education (IEES Vol. I). Much of this progress can be traced to events which began in the mid-1970's when a large surplus in oil revenues made possible a building program which saw the construction of some 80,000 new schools. At the same time, massive textbook and teacher training programs were introduced, following on the introduction of a new curriculum in 1975, which printed some 96 million textbooks and 196 million library books (IEES Vol. V 1986: 46) and trained over 830,000 teachers. Such a large and rapid increase in facilities and enrollment is probably unique in the developing world.

Part of the reason for such an investment in education is the strongly-held belief that it is intimately linked to national development, both economic and political. In a country where the majority of the labour force has <u>not</u> had a primary school education, and only 13% more than six years of school (IEES Vol. II 1986: 204, 233), the social rate of return to primary education is high -- some 25.5% (IEES Vol. I 1986: 12). Evidence exists, as elsewhere in the developing world, that such education leads to greater economic growth, higher employment and earnings, lower fertility, and greater equity in the distribution of development benefits.

In social-political terms, education is seen to play an equally important role. The long colonial rule of the Netherlands exacerbated many of the social, ethnic, and religious differences still seen in modern Indonesia. The populist but often unstable era of Sukarno's "Old Order" began with a proclamation of independence from the Dutch in 1945, was followed by years of intermittent war against the Dutch until independence became a reality, and ended in 1967 with the inauguration of Suharto as President of the Republic after almost two years of bloodshed between pro- and anti-Communist forces and among other political and

social movements. The last 20 years has seen a process of increasing stability under the New Order government of President Suharto. The education system has played a critical part in this process by helping to unite Indonesians around a common history of national struggle, a national language, and Pancasila, an omni-present national creed. Primary education, through its absorption of virtually every young Indonesian, is the major actor in this consolidation of political philosophy and national unity.

Despite this role and the resources provided to primary education to achieve its objectives, many problems remain. In a country where 70% of the population lives on three centrally-located islands (Java, Bali and Madura) and 85% still reside in rural areas (IEES Vol. I 1986: 6), large regional disparities in educational availability and quality continue to exist. The average pupil in Jakarta takes 6.88 years to complete the primary cycle; on Java and Bali, 7.80 years; and in the Outer Islands, 8.43 years (IEES Vol. II 1986: 184). Largely as a result of this, the cost per graduate is 1.5 times higher in the Outer Islands than on Java (IEES Vol. I 1986: 12). Considerable variation also exists in pupil-teacher ratios and in drop-out and repetition rates (nationally, 3% and 11% respectively).

Deteriorating financial conditions in the mid-80's, sparked largely by huge declines in oil revenues, have also caused serious problems. Falling labour absorption rates and a fragile manufacturing sector, coupled with a debt burden which is over one-third of the national budget, have weakened the economy and led to both a high rate of under-employment and a restriction on routine and development budgets. As a result, fewer schools are being built and maintained and fewer teachers are being trained and upgraded.

Perhaps of greatest concern at the moment, however, is educational quality, in terms of both external efficiency or relevance and the nature of the teaching-learning process. With hundreds of thousands of children dropping out of primary school each year and a million or so graduates (30%) not continuing to secondary education (IEES Vol. V 1986: 54), the economic relevance of a system still largely academic in nature is often debated. Even more widely discussed is what is seen as being a decline in the quality of classroom teaching, one sign of which is an average rate of the correct responses in the 1984-1986 national university entrance examinations of only 37% (Kompas February 11, 1988: 1); these are applicants who would have been taught in primary school in the 1970's by that era's huge number of new and often poorly-trained teachers.

Other reasons may exist for such results and perceptions. Teacher salaries are considered low and working conditions, especially in rural areas, often unfavourable; the best lower secondary candidates seldom enter teacher training courses. Supervision is largely administrative in nature, with little professional help sought by teachers or given by headmasters and supervisors. Management of the primary system remains divided between the Ministry of Education and Culture (in academic affairs such as curriculum development and training) and the Ministry of the Interior (in the provision of financial and other resources, salary payments, and teacher placements and promotions). Such "dualism" leads to competition, contradiction, and occasional conflict between officials of the two ministries at many levels of the system. And the pre-service teacher training system, representing over 400 state colleges, despite over 10 years of large World Bank assistance (which included large amounts of new curricula and extensive "cascade" training, is still seen as heavily theoretical, didactic, and dominated almost entirely by lecturers who themselves have never taught in primary schools.

The challenges to Indonesian primary education over the last 20 years of the New Order have been great, and despite (or perhaps because of) rapid quantitative expansion, they remain daunting. It is against this background of the quite desperate conditions of the late 1960's, the heady rush to expansion of the 1970's, and the more sober realities, both economic and pedagogic of the 1980's, that the process of educational change in Indonesia -- and the three innovations described in the following chapters -- must be seen.

III. PROJECT PERINTIS SEKOLAH PEMBANGUNAN (PPSP)

A. Background and Project Initiation

In the late 1960's, as the New Order continued to consolidate both national stability and its own control of the apparatus of government, a more systematic approach to the problems of Indonesia's development, which had been greatly exacerbated by the uncertainty and violence of the middle of the decade, began to be evident. Its first Five-Year Development Plan was begun in 1968/69. In education, an educational development "board" -- the Badan Pengembangan Pendidikan (BPP) -- was established in 1969 and charged with the task of assessing the problems and potential of Indonesian education. Its chairman, Dr. Kartomo Wirosoehardjo, and deputy, Dr. Setiadi, soon after helped launch a formal National Assessment of Education, partly assisted by Ford Foundation funds and consultants. This assessment was accompanied by a number of seminars and workshops, both national and local, on various educational issues.

These activities, enforced by the then popular writings of Coombs (1968), Harbison (1964), and Faure (1972), brought to the forefront several shortcomings of Indonesian education. It was seen as irrelevant to the challenges of a developing society; separated from this society by a highly academic content and teaching-learning process and by a hierarchical structure; imbalanced both vertically and across Indonesia's various regions; and meeting more the society's subjective desires for education rather than its objective needs (Soedijarto 1977).

Based partly on this analysis, and intrigued by the comprehensive schools seen on a visit to England, the Minister of Education, Mashuri, began to plan what became known as the Development School Pilot Project (PPSP). This project was managed by a powerful group of leading educators known as the Committee of Eleven. In a speech in 1970, Mashuri indicated that such a system should be able to provide lifelong education, both formal and non-formal, to youth and adults and to achieve a "development" orientation needed to prepare a skilled, knowledgeable workforce (Mashuri 1970). Many officials later visited the comprehensive school system in England, and in 1971, based on their reports, Mashuri adopted such a system. It was adapted to cover an eight-year elementary cycle, a four-year secondary cycle, and a clear distinction within the school of vocational and academic streams.

With the support of the Directorate General of Primary and Secondary Education, which administered the project, he proposed that the PPSP be developed in 1973 and disseminated nationally the following year. Given the heavy educational input needed for such rapid development, he decided also to locate the eight original pilot schools in IKIPs (university level institutes of education and teacher training) on Sumatra, Java, and Sulawesi. Several additional schools were built in other provinces, ready for early dissemination of the project.

Not all educators agreed with this plan. In 1972 Kartomo left BPP, partly in disagreement over the PPSP, and was replaced by Dr. Santoso Hamijoyo (with Setiadi still as deputy). Concerns both over the high cost and rapid speed of PPSP development and over evidence that students were leaving the pilot schools for fear of being placed in the vocational stream came to a head at the time Mashuri was replaced as Minister by Soemantri. In his short term in office (he died in 1973), Soemantri bowed to mounting criticism and transferred control of the project from the Directorate General to BPP, abolishing the Committee of Eleven in the process. The new Minister, Sjarif Thayeb, was a strong supporter both of BPP and PPSP.

As this was happening, the National Assessment's so-called Cluster II Task Force on the Identification of Educational Objectives evolved into BPP's Curriculum Development Centre. This cluster, with the help of UNESCO and the assistance of consultants from the RAND Corporation and of some 325 Indonesian informants, had spent two years developing detailed educational and curricular objectives for both academic and technical subjects as well as for religion, citizenship education, culture, health andO sports, and personal development. The head of the cluster and then of the Centre, Soedijarto, and several other BPP staff (including Moegiadi, Tangyong, and Ibrahim) were charged with altering the nature of the PPSP within the context of a "master design" for educational reform in Indonesia.

B. The Design of the Project

1. The Planning Process

These were heady times. The young and ambitious "master designers" had been exposed to a number of new ideas. Soedijarto had been trained at INNOTECH, the SEAMEO educational innovation and technology centre, by American consultants expert in individualized programmed instruction (the same consultants who were later to play a major role in the PAMONG Project); had been exposed to systems analysis at the Rand Corporation; and was acquainted with American experience in modular instruction. Moegiadi had been to the International Institute for Educational Planning in Paris and there had come into contact with Murray Thomas of the University of Santa Barbara and Neville Postlethwaite of the University of Hamburg. Both Thomas and Postlethwaite were experts in instructional design and mastery learning concepts.

Indonesian experience also had a powerful influence on the master design. The IKIP in Malang had established a laboratory school in 1968 under the charismatic leadership of Dr. Supartinah Pakasi; this school, among other innovations, showed that a five-year elementary education was feasible. University lecturers in various fields were also experimenting with modular instruction. These various influences and others came

together in planning of the master design, and in 1973 a document was drafted, debated, revised, and sanctioned in a rush of enthusiasm and high motivation.

The design envisioned the need for some short-term improvements in the education system -- an increase in enrolment, a new curriculum, better teacher training -- as well as longer-term re-structuring of the entire education system (Soedijarto 1975). Beginning from the need to develop a system more equitable, relevant, efficient and effective -- and taking into account available "raw input", current conditions, the social, economic, cultural, and psychological environment, and desired outputs -- it proposed the lengthy, systematic development of a pilot project, carefully tested and evaluated (each new method and curriculum was to be tested twice), which would affect and eventually reform all elements of the system (BP3K 1975). As the chairman of BPP reported to Parliament in 1973, it was intended that such a process would lead to a completely new curriculum by 1981/82 (Santoso 1973); it was also assumed that results would be ready for wide-scale application by the Fourth Five-Year Plan (1983-1988).

With the adoption of this design, the revised PPSP came into being. Soedijarto, as head of the newly formed Curriculum Development Centre, became the project leader, strongly supported by Setiadi who became chairman of BPP in 1974. (BPP became a research and development board -- BP3K -- in 1975. Even later it became known as the Balitbang; it will henceforth be referred to as Balitbang in this book though citations will reflect the name of the Centre at the time of publication).

Details of the various components of PPSP were to be worked out throughout the mid-1970's, but in the early days of its planning it already was dominated by clear assumptions about the nature of Indonesian education, about learning, and about the educational change process. In regard to the first, it saw two major weaknesses: an overloaded, unsystematically-derived curriculum, and a teaching force bound by traditional methods of rote learning and unable to respond to the kind of development-oriented education which Indonesia required. As the creator of PPSP wrote, "the majority of Indonesian teachers...are not so creative or dedicated as to be able to develop the most effective and relevant learning experiences" (Soedijarto 1977:22).

In response, PPSP planners made two further assumptions: that curricular objectives could be logically derived from national and system-wide goals and then broken down into a precise hierarchy of instructional objectives, and that learning could be made individualized and "teacher-proof" so that students could learn what they needed to learn with minimal assistance from teachers. It was assumed that the "characteristics of this system will enable learners to experience learning activities designed by the best qualified people in various

disciplines and will not only be dependent upon the inadequate quality of teachers that the system of mass education can at present provide" (Soedijarto 1977:19-20).

From the beginning, the PPSP was an excellent example of a technocratic approach to educational change with objectives clearly derived from national development goals, based on relatively recent scientific evidence regarding learning processes, and committed to a systematic approach to research and development via0 experimentation, replication, and eventual national dissemination. As such, it was very much in tune with the "planning orientation" that had become a feature of Indonesia's basic approach to social, economic, and political development (Adams 1981:241).

In designing the PPSP, its planners had varying success in taking into account conditions and constraints of Indonesian society. Clearly they were in sympathy with the political and ideological goals of a more development-oriented education, and there was at least some idea at the beginning as to how PPSP would fit into the broader, longer-term development of Indonesian education: PPSP was the long-range reform while other changes (e.g., a new curriculum in 1975) represented shorter-term tinkering with the system. But as middle and high-level bureaucrats in what was then a powerful research and development centre, the planners of PPSP were not adequately concerned about the readiness for reform of other parts of the bureaucracy or adequately informed about the extent to which the system as a whole -- rural as well as urban schools -- could be altered by top-down, national reform.

2. Results of the Planning Process

a) The project's objective

Under the general goal of developing an effective primary and secondary education system relevant to individual and social needs, able to serve as the basis for lifelong education, and consistent with Indonesian resources and capabilities, several specific objectives of PPSP were outlined in an early document, as follows:

1) to develop student-centered courses in all subject areas for all age levels;
2) to develop courses at the school level relevant for those proceeding to employment in rural as well as urban areas and also for those continuing their studies in colleges and universities;
3) to develop courses and a management system which are sufficiently flexible to cater for students of all interests, needs and potentials;
4) to develop courses that are sensitive to the environment of the individual and enhance national spirit and identity;

5) to develop effective means of delivering the courses, including improved buildings, facilities, materials, and teacher education;
6) to develop a comprehensive and continuous evaluation system of students and courses so that weaknesses can be corrected and strengths exploited; and
7) to develop guidance and counselling procedures so that each student can be assisted to derive the greatest benefit from the educational opportunities available (BP3K 1975).

Though not particularly concise or clearly sequenced at the beginning, these objectives were to become so in the early years of project development. More importantly, at this stage, they were complex and multi-ended in nature and ambitious in ultimate geographic and institutional coverage. Though limited at the beginning to eight pilot schools, the PPSP was seen by its originators as the model for eventual national dissemination. By locating the PPSP in IKIPs, the planners also assumed that these IKIPs would become centres of good practice (Setiadi 1979) -- and therefore bases from which results of the PPSP could be disseminated throughout the country. The reform was also firmly grounded in a proven literature of educational innovation -- proven at least in various European and North American experiments.

b. Contents and components

In the first few years of project development, a number of different components were identified and elaborated (BP3K 1981). Tied together into the core of the innovation were the concepts of curricular objectives and modular instruction. New "development-oriented" objectives were to be developed, sequenced, elaborated, and then delivered to students -- in a teacher-poor environment -- via a modular system of instruction. This system was to be more than mere programmed instruction; by focussing on affective and psychomotor outcomes as well as cognitive achievement, and by emphasizing discovery methods, varied and lively student activities, extensive feedback, and performance as well as paper-and-pencil tests, this was meant to be truly a "modular information system" (Adams 1981, Soedijarto 1977). It permitted students to study by themselves, to work actively and at their own pace along clearly defined lesson units using a variety of media and methods, and to receive direct and continuous feedback. Such concepts led naturally in two directions: (1) first toward a reform in curriculum administration which included continuous and individualized progress through a set of objectives and, using a credit system in secondary school, through the set of required courses, and (2) later toward mastery learning, the successful achievement of a certain percentage of objectives by a certain percentage of pupils.

The development-oriented nature of PPSP, going back to its comprehensive school origins, led also to a streaming system in secondary education, guidance and counselling procedures to make such a system work, and the development of one-year terminal skill education courses designed for students leaving a particular level of the system. These various components in turn led to changes in student evaluation and to two major structural changes. On the assumption that an efficient modular system could move children through six grades of primary education in five years and that some secondary students might move through their three grades in less time, the new system was 5-3-3 (or less), with each level followed by a terminal "skill year" for those needing it. On another assumption that administrative efficiency could be increased and parental and student concern over school entry decreased by putting all levels of education under "one roof", the PPSP primary and secondary schools were consolidated in one school administration.

These numerous components of the PPSP reform implied very drastic changes in Indonesian education. Teachers were no longer to be transmitters of information based on learning experiences of their own design but rather facilitators (diagnosticians, module managers, evaluators, planners of remediation and enrichment) of what was seen to be a much richer and more varied process of learning designed by education experts. The teacher training system was expected to prepare teachers for such a new role. Curricular objectives, from basic course outlines to detailed learning units, were developed, and the curriculum itself was divided into general, academic, and skill subjects; these were in turn divided into a core curriculum and electives, and into different senior secondary school academic streams. Each subject (except religion, culture, sports, and health) was then developed in modular form. These modules, which totalled 1684 by 1979, plus 167 for enrichment and remediation (Setiadi 1979), eventually included teacher's manuals, student activity booklets, student worksheets and answer sheets, and student assessment sheet and answer sheet (Adams 1981). Under the "one roof" administration, changes were also made in school organization and management, and it was assumed that such changes (and others relating to textbook production, examination systems, etc.) would be reflected in other parts of the system.

As a total, these changes were innovative, radical, and far-reaching, encroaching on all levels and all parts of the education system. They were very different from common practice -- curricular, pedagogical, administrative -- and very elaborate in nature. They were also quite flexibly implemented; that is, while seemingly prescriptive on paper, individual IKIPs were allowed to reject certain components, such as the one-roof system and individualized, continuous progress, and to alter others to meet local conditions. But the nature of the try-out was clearly to develop components in the IKIP projects which could then be replicated first in nearby, "average" schools and then widely throughout the country.

C. Implementation of the Project

1. The Implementation Strategy

The strategy adopted to implement the PPSP project had several different faces. On the one hand, once the project was under the control of Balitbang's Curriculum Development Centre and its head, Soedijarto, it had a gradual and evolutionary development. Components were conceptionalized, often with input from abroad, elaborated, discussed in ad hoc meetings of the project team and IKIPs, and then tried out in several, if not all, project sites. As different components proved feasible, some were adopted or adapted within the larger system (e.g., detailed curricular objectives in the 1975 curriculum). On the other hand, PPSP's implementation was publicly very formal, even ritual, in nature. National coordination meetings were held periodically, attended by up to 150 educators, policy-makers, IKIP lecturers, and project staff, to provide formal endorsement of major project directions and budget allocations. While Soedijarto consciously avoided giving PPSP the high public profile which Presidential or Parliamentary support might have engendered (wishing to convince policy-makers through the project's merits rather than by political clout), these national meetings were, in fact, powerful, aggressive and high-profile affairs.

One rationale for such meetings was the need to gain agreement among the major PPSP actors. Officially this included Balitbang, the Directorate-General of Primary and Secondary Education, and the Directorate-General of Higher Education (in charge of IKIPs). Potential differences of opinion among these parties could be resolved, at least publicly, at a national meeting.

One other aspect of the implementation strategy was the flexibility given IKIPs in deciding how to achieve the project's various targets and to adapt its components to local needs and conditions. Thus, while the focus of administrative control was firmly in Balitbang's hands, the focus of creative adaptation was at the IKIP's; not all of them, however, took up the challenge.

2. Resources

PPSP suffered few problems from a lack of resources in its developmental years. Local budgets for the capital costs of IKIP buildings and facilities, for developmental and operational costs, and for research steadily increased in the late 1970's with funds provided both at Balitbang and in each IKIP. Foreign assistance was therefore required only where foreign exchange became a problem; i.e., for short-term consultants and foreign training, both provided largely by UNESCO. By 1976 some 200 module writers and 120 evaluators were involved in the project (Soedijarto 1976).

Two major failings in the human resources available to PPSP, however, plagued the project for years. Module writers were invariably part-time staff, working elsewhere preparing textbooks or lecturing at IKIPs or universities. They were also seldom expert in modular instruction. Modules were therefore not always well-written, often published by inefficient commercial publishers, seldom delivered on time, and rarely modified when needed or as well as desired. Also, the IKIPs themselves, supposedly the centre of Indonesian expertise in educational theory and practice, often proved indifferent to the innovations in their midst and unable to provide the technical resources needed for development, research, and evaluation.

Another resource was moral support. In the early days of project development, Balitbang got what it wanted. With a sympathetic Minister, relatively weak competing directorates, and a national mandate to produce an education system supportive of development, Balitbang had considerable support, at least in the first several years of project development.

Support at the local level, however, was more problematic. Teacher enthusiasm varied with the general quality of the PPSP project across experimental sites. Local education officials, who would become implementors of any wider dissemination of PPSP, were largely ill-informed of these IKIP-based projects and concerned with many shorter-term, routine tasks.

3. Implementation Procedures

Procedures adapted to aid in project implementation are another important resource in determining project success. In PPSP, these were not always adequate to the needs at hand. Funds were received when and as needed and, on paper at least, project management looked to be well-structured. From 1975-1980, Soedijarto, as head of the Curriculum Development Centre, was firmly in charge of the project, with day-to-day administration assigned to a PPSP project director. Teams were established within the project to handle school administration, evaluation, curriculum development, skills training, and guidance and counselling. At each PPSP a project director (originally, in some cases, the IKIP Rector) worked with a school director and/or headmasters of each school level and various assistants to implement the project. Local advisory and evaluation committees also provided assistance. Such arrangements were quite complex, however, and it often proved difficult for the centre to monitor well the progress of critical parts of the development process (such as module production) and of each PPSP. Thus, for example, no systematic evaluation of the project as a whole was carried out until very late in the project, and little evaluation of any kind was implemented through local initiative.

The national coordination/consultation meetings provided a mechanism for official review and sanctioning of project implementation,

and annual reports were an important part of such meetings. To some extent the staff of line agencies attended such meetings and in some cases collaborated actively in project development, but in general such agencies, especially their staff at the local level, felt little involved in PPSP. And while PPSP teachers were trained in relevant materials and methods, and occasionally teachers elsewhere received such training, there was little attempt to influence the wider teacher training system.

4. Project Management and Content

As PPSP evolved, major changes both in project management and particularly in content occurred. In many ways, the project was thereby enriched, but as its content evolved, its support eroded until it became a "bundle" of discrete innovative components (some more successful and promising than others) but no longer a "system" amenable to widescale dissemination.

As discussed above, the early days of PPSP under Balitbang control were characterized by the strong central leadership of Soedijarto and his management team. A strongly supportive Balitbang chairman (Setijadi) and Minister (Sjarif Thayeb) ensured funding and moral support. But the Minister was replaced in 1978, by Daud Yusuf, a man more indifferent to innovation, and Setijadi and Soedijarto left in 1980. While the latter became an "expert" on the new Minister's staff until 1982, and thereby likely made the Minister somewhat more sympathetic to PPSP than he was at the beginning, it became clear that the project qua project was in trouble. Funding began to decrease from 1980 (as oil revenues tumbled), central management teams and local advisory councils were abolished in 1981, no national meetings were held after 1982, and project management was not taken over by Soedijarto's replacement but rather given over to a "task force coordinator".

The content of the PPSP evolved as well, at a level quite different from changes in management and control. Research and evaluation findings, experiences from the field, and advice from consultants, experts, and policy-makers led to several major changes. In general, the more radical components were eliminated and the more complicated ones simplified; at the same time, the more "reasonable" components were slowly absorbed into the regular system.

In Soedijarto's ideal system, modular instruction solved the major problems of Indonesian education: poor teachers and boring teaching. Such instruction, based on well-written, imaginative, and self-contained modules, would produce optimal learning conditions in school and would permit students to work through systematically-derived curricular objectives at their own pace (continuous progress). Two major problems arose to disturb this ideal system. First, the modules themselves -- while eventually simplified and revised -- never were as stimulating nor as easy to manage as expected and thus could not operate alone. Also, it became impossible to administer a system where every student worked at a different pace.

Individualized continuous progress thereby gave way to class-based mastery learning; the class would advance en masse once 85% of its members had achieved 75% mastery of the material. But such a system required in turn either teachers skilled in diagnosing variable student abilities and designing appropriate enrichment and remedial exercises or the development of completely new sets of enrichment and remedial materials. Some model tests, materials, and teacher training exercises were developed but never widely put into place (Thomas 1981). By the early 1980s, therefore, while a modular system based on mastery learning was functioning in the pilot schools, its more radical features, especially individual continuous progress, had proven unfeasible. The self-contained modules themselves had been supplemented by so-called "learning packages" where teachers were again responsible for designing more varied learning activities using a variety of media, methods, learning resources, and delivery mechanisms. These were intended to reduce some of the isolation and individualism engendered by the modular system and to strengthen interaction between teachers and (especially weaker) pupils (Nasution 1979, Marsandi 1984).

Two other components of PPSP had also proven difficult to implement. "One-roof" administration was an early non-starter. While feasible in an IKIP school, where all levels of education could be placed under one administration, it was not feasible in areas where secondary schools could not be economically justified. Administrative positions of headmasters and their assistants are also important employment-generating mechanisms in Indonesia's teaching force; a reduction in their number was not a popular reform. The terminal skill training programs also met with little success; it proved much more difficult than expected to design relevant courses, promote the participation of local industry, and encourage terminal graduates to take the courses.

Other components were refined rather than eliminated. Methods of evaluating pupil progress and of providing guidance and counseling services were developed, streaming and a credit system in senior secondary schools were perfected (and permitted many students to complete three grades of schooling in 2 or 2½ years), and the six-grade primary cycle was consistently delivered in five years. Problems of certification, however, arose when graduates of such schools could not demonstrate that they had passed the legally-required six years of primary schooling.

Thus, many problems were encountered during the implementation of PPSP -- conceptual, practical, political, and financial. The modules themselves, their writers, their publication and distribution, and their process of review and revision were never adequate to the task at hand. Even by 1977, for example, no classes in any of the schools had studied a complete lesson unit entirely with modules. The management task itself became increasingly complex, even if limited to only eight schools, as the modular system became more refined, with diagnostic tests, enrichment and remedial activities, and "multi-method" learning packages. Many teachers, it seems, found it difficult to manage the complex demands of the elaborated modular system (Tim Evaluasi Sistem PPSP 1984).

As one outside consultant commented in 1981, "many of [the] elements of the system, necessary to making the modular approach live up to its potential, have...been neglected. They have not become routine, systematic components of the program" (Thomas 1981:8). Overcoming such practical problems required a "sense of urgency" which not every level of the project or individual manager brought to bear; e.g., IKIPs waited three months to report that required modules had not arrived. And Balitbang's powerful position in the mid-1970s gave it little incentive to involve the implementing agencies in Jakarta or in the provinces in the kind of activities which might have bound them to the innovation when their role in the Ministry became more important than that of Balitbang in the early 1980's.

Despite these problems, a high point in PPSP development seemed to have been reached in the early 1980's. The most controversial components had been eliminated; the modular system had been refined; new management in the Ministry was still rhetorically favourable to the project; funding was at least holding steady; and a major evaluation of the project was underway. The next few years of PPSP, however, would see a steady erosion in its financial, moral, and political support.

D. Evaluation of PPSP

Evaluation played an important role in PPSP. Beginning in 1975, continuous formative evaluation of each component was carried out by the various teams responsible (e.g., school administration, module-writing) advised by a National Evaluation Team and reviewed by the head of the Curriculum Centre, senior staff, and outside consultants. Such studies helped identify and correct weaknesses within each component. In 1979 plans for a large comparative evaluation between PPSP and "ordinary" schools were made; data were collected in 1980; and a draft report of what became known as the "pre-evaluation" (because not all components had then been tried out) was written in 1981. This draft was quite blunt, especially regarding problems in PPSPs in relation to using modules in the classroom, curriculum administration, and student evaluation, and discussed factors which caused some PPSPs to succeed more than others. Many project directors objected to these findings, however, for fear that they would hurt other, more favourable results (Marsandi, personal communication).

Later that year the design of a comprehensive evaluation of the PPSP was drafted. Some further data were collected in 1982, but most of the data for this evaluation about student achievement were taken from the 1981 pre-evaluation. The bulk of the results of this comprehensive evaluation, particularly in regard to the impact of the PPSP on course mastery and student achievement, was never published except in a dissertation completed by Soedijarto in the mid-1980's. Also, a comprehensive study of costs was abandoned because of the complexity of determining developmental and routine cost data. Many of the data gathered, especially those on various intervening variables, were accidentally destroyed (Marsandi, personal communication).

It is not completely clear why the comprehensive evaluation ended with such a whimper. Once Soedijarto had left Balitbang (in 1980), and especially after he left the Ministry (in 1982), much of the steam went out of the project. National meetings were no longer held, modular instruction appeared to go out of favour, and other projects began to take precedence in funds and energy. As a result, through PPSP was still vigorous and evolving in several sites at the periphery, there was considerably less pressure or demand for a systematic evaluation of its results at the centre. When such results were eventually requested by a new Minister in order to make a final go/no-go decision on PPSP, they were not available.

The results that were available were inconsistent and not comprehensive in nature. Pupil results were better in some subjects at some levels and worse in others, but differences were never large and seldom significant. There was some evidence to show that the gap between high and low scores was less in PPSP schools and that primary pupils in PPSP schools achieved at the same rate as those in ordinary schools despite having attended one year less of education. Pupils did especially well on verbal tests and less well in mathematics, and also received more homework, spent more time on it, and studied more systematically after school (Tim Evaluasi Sistem PPSP 1984). They also had considerable skills in self-study and considerable enthusiasm for reading (Marsandi 1984). Teachers feared, however, that weaker, less active, or more "auditive" pupils fared poorly in the PPSP system. In some PPSP secondary schools, also, large numbers of students cut one-half to one year from the three-year cycle, and large percentages were accepted into universities, either through direct intake (based on their school records) or via the national entrance examination. Such results, however, varied widely across the eight PPSP sites as did results concerning non-cognitive outcomes of the project (generally lower scores on attitudinal measures for PPSP pupils) and evidence regarding how correctly and intensively various components were being implemented.

The various evaluations done on PPSP also examined other issues (Holsinger). It was clear that serious problems plagued PPSP management, particularly in regard to module production and distribution. Teachers also had little time for remedial or enrichment work and found many modules too complex and difficult to complete on time (Tim Evaluasi Sistem PPSP 1984). Attempts to spread the PPSP technology to "dissemination" schools near each original school did not work well. Though they were moderately successful in the early years of development, eventually they failed. It was difficult to keep them supplied with modules when even the experimental schools did not have enough, and officials of the provincial education offices, who were meant to actively participate in this schools, were quite uninterested in them. Thus the coverage of PPSP after a decade of development was largely limited to the eight original sites.

Most importantly, perhaps, the evaluations did nothing to dispel the very critical notion that the entire PPSP project was externally invalid. It was argued that the close relationship of PPSP schools to IKIPs -- their location within IKIPs, their well-trained teaching staffs, their proximity to IKIP resources, their enrolment composed largely of children from IKIP staff (or from comparable urban elite groups), and the very nature of the experimental conditions themselves -- made invalid any claims that experimental results could be generalized to a larger population and that the PPSP system could be disseminated widely throughout Indonesia. [Though PPSP advocates claim that elite children were not terribly over-represented in the schools, the 1984 evaluation showed that 48% of PPSP pupils' fathers and 15% of their mothers had a sarjana (five-year) degree versus 16% and 5% respectively for equivalent, non-PPSP pupils' schools. Also, 30% of PPSP fathers were teachers versus 9% in other schools (Tim Evaluasi Sistem PPSP 1984:48)].

The final recommendations of the 1981 and 1984 studies of PPSP included limiting its basic 5-3-3 system to urban and suburban schools, and only slow dissemination of other major components such as continuous progress and mastery learning until more basic research on cognition and reading levels was completed and major problems of module revision and management were solved. Evaluations concluded that the modular system was not appropriate for all teachers and all pupils and that the PPSP system as a whole probably could not be successfully implemented in average schools with average teachers (BP3K 1981a, Marsandi 1984). But they did agree that certain parts of PPSP, particularly the concepts of mastery learning, continuous progress by ability grouping, learning packages, and modules (beginning in fourth grade), should be disseminated to all schools in the next scheduled curriculum reform.

E. Outcomes of the PPSP

By 1983 yet another new Minister had taken over the Ministry of Education and Culture. While the former Minister had had no particular interest in PPSP, he had allowed it to live -- and to continue searching for "hard facts" able to prove its worth. But neither funding nor moral support to carry out such a search was provided within Balitbang. By the time the new Minister arrived in 1983, therefore, there was no one in Balitbang able and willing (in the words of a senior Balitbang manager) to "show him the PPSP box". No one championed it; no one defended it. When Balitbang was pressed by the Minister to gather "facts" to help decide the fate of PPSP, few were available. The final evaluation had never been completed, particularly in regards to the critical areas of comparative cost and achievement; the IKIP rectors (many of whom were new to PPSP), when asked for words of support, had little to offer, despite the unflagging enthusiasm of some PPSP staff and IKIP lecturers still involved in the project; and the data available, which might have deflected many criticisms of PPSP, such as the results of Soedijarto's dissertation, were ignored in the face of commonly accepted opinion that the PPSP experiment was expensive, sophisticated, elitist, and, worst of all, inconclusive after a dozen years of high-profile experimentation and development.

A series of consultations and meetings was held to decide how best to end the project. Some IKIPs (and the 1984 evaluation) argued to keep the PPSP schools as research laboratories for IKIP staff or to permit their joint administration by the IKIPs and the provincial offices of the Directorate-General of Primary and Secondary Education. Neither proved bureaucratically feasible. Thus, the schools were given over fully to the Directorate-General and became, with the stroke of a pen, "ordinary" schools.

The problems of such a transfer, however, were many. PPSP teachers, many from IKIPs, were often too highly qualified and classified to remain as ordinary teachers, especially at the primary level, and some PPSP buildings on IKIP campuses were considered by IKIPs as their property. In the worst cases, therefore, there were wholesale transfers of ex-PPSP teachers to higher-level schools or to IKIP administrations, leaving the old PPSPs understaffed or staffed with new teachers unfamiliar with their pupils' background. Some ex-PPSP schools were also forced to find new buildings and facilities outside IKIP campuses. Modules also became largely irrelevant to the new schools; in some cases modules were used for selected curriculum units or kept in school libraries. In one case, however -- due to lack of storage space -- all but one set of the modules were burned.

A final problem concerned the transition of pupils already in the 5-year PPSP primary cycle or the accelerated senior secondary program. The former case, no longer permitted after PPSP was stopped, forced schools to unilaterally jump students from (for example) primary 3 in the PPSP to primary 5 in the regular school (so as not to repeat material). The latter program has apparently also been abandoned except for the PPSP in IKIP Jakarta which has obtained agreement from the local education office to keep a selected number of students in an accelerated program. Also, the automatic movement of pupils from one level of schooling to another, guaranteed under the PPSP "roof", is no longer permitted (except, again, in Jakarta). Parents who once assumed their children could gain such automatic selection now must face the heavy competition of entrance examination at each level of the school system.

F. Reasons for the Outcomes of PPSP

While components of PPSP were to become important parts of Indonesian education, a workable model capable of functioning elsewhere in the system was never really developed let alone disseminated. In reference to the analytical framework for assessing the success and failure of reform outlined in the first chapter, the reasons for this kind of failure are many, focussed primarily on the nature of the innovation itself and on the process through which it was implemented. Other factors, however, were also important.

1. The context of reform

PPSP was born and developed in a generally favourable context. The country was financially well-off, compared to the previous decade, and politically stable -- a good environment in which reforms might grow. The educational bureaucracy, however, was (and is) highly complex, and complexity with stability appears particularly lethal to the innovation process. This is especially true given the characteristics of the cultural context where anything too bright and new and visible is suspect, where few initiatives are taken without clear instruction from above, and where certain aspects of PPSP became easy to attack on cultural and bureaucratic grounds. For example, its stress on "individualism" was said to be contrary to Indonesian culture and Pancasila collectivism. One high-level bureaucrat told me that PPSP's combination of primary and secondary education was clearly unsuitable because it was contrary to the law which specifically insists on separate levels of education (as if innovations are not meant to challenge the status quo!). Several others criticized PPSP as being elitist, urban, sophisticated (which was partly true), and resulting in really "nothing new" (which was not). PPSP, in other words, had a difficult time combatting particular prejudices and popular misconceptions.

More critical, perhaps, was its neglect of the context of reform at the school level. One reason for its lack of success, both in some of the pilot schools and among many educators generally, was the fact that it did not clearly take into account the administrative or pedagogical environment of the "average" school. While it was not totally urban or elitist, it was designed for atypical schools, perhaps for good experimental reasons, but then never moved beyond this to face the conditions of more poorly-trained teachers, more indifferent headmasters, and more inadequately-prepared pupils.

2. The Characteristics of Organizations

Socio-cultural norms of Indonesian society at large are reflected strongly in its bureaucracy and in the organizations this bureaucracy supports. Part of PPSP's lack of success was its inability to work within this bureaucracy. It did some of the ritual things correctly -- the high-level national meetings, the cautious but pro forma clearance of major decisions with its advisory committee -- but it did not really adapt itself to the dominant characteristics of the institutions with which it had to deal. As primarily an academic exercise, carried out by academics within IKIPS and Balitbang, it did not understand the norms of the line directorates or provincial and district-level education offices which, even in a time of relative prosperity, were interested more in preserving (and extending) what was traditional and proven rather than in trying out, at some risk, what might be better. And it did not have the patience to deal on a daily basis with the needs and concerns of what it considered to be rather unimaginative civil servants.

The PPSP team itself was able enough, with skilled administrators, creative thinkers, and, at the school-level, dedicated teachers and managers. It had time, resources, and money with which to work. But it did not have particular capacity (or the interest) to evaluate the work it was doing, had little legitimacy within the bureaucracy for its activities, and, at its highest levels, not enough continuity or stability of leadership. The other organizations which might have supported its work were even less capable of the needed support or imagination. The design of new national texts and examinations went on with little reference to PPSP, the institutions responsible for writing and printing PPSP modules were frequently in arrears, the teacher training institutions (SPGs) ignored its work, and the IKIPs, even those in which the PPSP schools were located, often gave only lip-service to the experiment. One embittered PPSP developer criticized the IKIPs in general as having neither the academic credentials nor the innovative spirit which such institutions of higher learning should have.

The organizations where the real work took place -- the pilot schools -- were, in the best of cases, perhaps the most praise-worthy of any, with dedicated staff, supportive parents, and often inspired students. But these were isolated enclaves both within the IKIP setting and within the larger context of schools and education offices in the surrounding community.

3. Characteristics of the actors

The major actors in the PPSP -- both at the national level and in the pilot schools -- were in many ways ideal to the task: bright, imaginative, persuasive, motivated. But not only did these actors represent a rather thin veneer of excellence overlaying a rather duller cast of supporting characters, but also their skills were lacking in important respects. The PPSP team lacked management skills so that the administration and monitoring of things such as the delivery of modules and the training of teachers, particularly in the last few years of the innovation, were weak and inconsistent. And many of the teachers in the pilot schools proved not adequate to the task, not able to work creatively even within the constraints of what was largely a teacher-proof system. The supporting players were also often inadequate. These included both narrow-minded bureaucrats unwilling to give credit where at least some credit was due and the project developers themselves and others at Balitbang who shared little among themselves, jealously guarded their activities and results, and ultimately, as Fullan suggests, were unable to exchange their reality with those of the vast majority of teachers who were meant eventually to be affected by the reform (Fullan 1982).

4. Characteristics of the innovation

It was primarily in the characteristics of the PPSP itself where its failure can be traced. It was highly complex, overly ambitious, costly, technically invalid and practically infeasible, and not in conformity with either cultural or bureaucratic norms.

Complexity. PPSP was highly complex in its goals, in the range of institutions and types of individuals with whom it had to deal, and in the skills and tasks which it promoted. It wished to change a great number of things, touching a great number of organizations (training colleges, textbooks development centres, local education offices). And though it was developed over a number of years and in a somewhat sequential and linear fashion, the new methods, materials, and procedures which it encompassed appeared complicated to those within the pilot schools and would likely have been overwhelmingly so to staff of other schools to whom the system was meant to spread. This complexity, both apparent and real, made it difficult to "market".

Cost and scope. It was also seen as being highly ambitious, as least at the beginning, as a reform meant to encompass the entire primary and secondary system throughout the country. Opinions differed on this within Balitbang, and eventually even the project developers began to see it as more of a limited experiment from which tested elements might seep into the system, but to the outside world it remained a national, and hence an ambitious, reform. In a similar way, it was also seen as expensive. With no data to the contrary, its modules and ancillary materials, equipment and supplies, and training requirements were considered costly and therefore not practical.

Validity and feasibility. Perhaps most damaging to PPSP, however -- and this is in marked contrast to the other two innovations under consideration -- was that it was considered both invalid as an experiment and infeasible as a reform. It started wrong, by being placed in IKIPs, and thus to some extent was (and was consistently seen from the outside as being) unrepresentative of the larger population. In the words of one policy-maker, it was elite, taking students from a "special social category", basing its results on atypical cases and contexts which would not really be part of any disseminatable model, and therefore not being part of the "real world" (personal communication). It was also seen as impractical -- too difficult for ordinary pupils, too academic, too cumbersome in its multitude of modules and tests and records, and administratively impossible to implement. As one Balitbang administrator commented, there was never any "how" in PPSP, never any clear idea concerning the ways it might be implemented afresh in non-project schools.

Conformity. It was therefore not in conformity with major elements of Indonesian education -- neither its norms, its needs, nor its practice. It was also not in conformity with cultural norms, encouraging pupils to act as individuals rather than as a part of a group and seeing teachers as mere managers of paper rather than as guides for a younger generation.

5. Characteristics of the innovation process

The implementation strategy adopted for PPSP did not help to overcome problems with the innovation itself. Neither the management nor the style of this strategy was appropriate to the needs of the moment.

Organization and management. The structure established to manage PPSP as an innovation eventually proved unequal to the task. One outside commentator wrote in 1981 that Balitbang had a "general problem in the administrative planning and [execution] of R&D projects"; in the case of PPSP, it was overloaded with work, not all the modules were getting done, the printing contract had been awarded to the cheapest bidder who also proved to be consistently late, the PPSP module writers were getting paid less by PPSP than they were in other Ministry projects, and good writers had not, even after several years of work, been weeded out from the bad (Postlethwaite 1981:11). By this date there seemed to be a general loss of control over the management of the system -- less commitment to it from above, certainly, as Balitbang leadership changed, but also less sense of urgency, perhaps, from below.

Another strategic problem was the inability to mobilize either widescale demand for the reform or widescale support. In part this was the fault of Balitbang (its "feudalism", according to one high-level bureaucrat) and its lack of outreach to, or interest in, genuine collaboration with other line departments at the national or local level. In part it was also the lack of any systematic and convincing evaluation concerning project outcomes. When the final decision was pending concerning PPSP's fate, literally no one, from IKIP rectors to Balitbang officials, could point to solid documentation as to what it had achieved.

A final problem of management relates to timing. In retrospect, PPSP (like PAMONG after it) should have seized the moment -- when a sympathetic Minister and Balitbang chairman were in power, when Balitbang retained clout (if not popularity) vis-a-vis other directorates, when the oil boom was in full swing. Rather, in its academic push for systematic experimentation and, ultimately, the "perfect" module and the carefully modulated instructional system, it dithered and dallied until a much less supportive context had emerged and a less sympathetic cast of characters had appeared on the scene.

Style and philosophy of implementation. Of all the innovations examined in this book, PPSP was the most centralized, the least adaptive, and the most technological in style and philosophy. Ownership and creative control remained in Jakarta, even if individual IKIPs had some room to introduce new ways to implement centrally-determined elements. Fidelity to these elements was important, though not forced. Most clearly, the entire project was based on a very rational approach to reform. It was meant to be done systematically, vesting "control and direction in the hands of (mainly indigenous) experts who in effect

'master-minded', from their position of authority, the activities of their subordinates" (Adams 1981:245). It began from detailed course outlines and specifications on course content, moved to modules and modular packages, then went into classroom trials, evaluation, and revision, then another set of trials, and then into the training of teachers and administrators and what was meant to be a detailed implementation plan. All of this was done with careful discussion and sanctioning at high levels. Such systematic development eventually broke down, as the better managers moved out of the system and as the reality of poorly-designed modules and the lack of real support became apparent.

G. Summary

As we will see later with PAMONG, the real objectives of the innovation were not achieved. Much of what it attempted can now be found in the structure and practice of Indonesian education, but much of what it explicitly hoped to accomplish has disappeared.

In the best of its pilot sites, it succeeded, probably beyond the developers' expectations. As one observer wrote:

"Evidence of high educational quality is...apparent. Grade 1 pupils were already writing sentences, turning them into stories, and then cutting out pictures to illustrate these stories (the best of which are then on an outside bulletin board)....Grade 2 pupils were writing letters to their teachers, with correct dates and addresses, and students in older grades were conducting scientific experiments and learning new mathematics with a full array of equipment and visual aids" (Shaeffer 1979:258).

But as a model it never went beyond the eight original schools (and even in some of these was not systematically implemented), and plans for wider implementation as a system went virtually nowhere. It thus became what Verspoor has labeled the "permanent pilot" - "programs that aspire to national coverage and show promising results in the pilot phase, but do not manage to mobilize enough support and/or resources to embark on nationwide application" (1989:6). Begun with high hopes and enthusiastic rhetoric, it was dismissed and died years later with little fanfare and considerable recrimination.

IV. PENDIDIKAN ANTARA MASYRAKAT, ORANG TUA DAN GURU (PAMONG)

A. Background and Project Initiation

At about the same time that the PPSP was moving to the control of the Office of Educational and Cultural Research and Development (Balitbang) and so to detailed elaboration and implementation, quite a different project was taking shape far from Jakarta and the Ministry of Education and Culture. The Southeast Asian Ministers of Education Organization (SEAMEO) had been established in the mid-1960's, largely with USAID support, in an era of heavy United States concern in the region (Cummings 1986:4). In 1970 SEAMEO created INNOTECH, the Centre for Educational Innovation and Technology, and charged it with the task (among others) of developing "an effective and economic delivery system for mass primary education" (Socrates 1983:5). The development of such a system, however, faced many problems: engrained, western traditions; rapid population growth; high drop-out rates; a lack of teachers, facilities, and money to provide more; and large economic and regional disparities in educational opportunity. It appeared to many educators in the region that "the traditional system of education patterned after a colonizer-country's educational system [was] dysfunctional and impractical for any developing country to maintain" (Socrates 1983:4).

By early 1973, these ideas and others, synthesized and developed by both INNOTECH staff and advisors from the United States, were presented at an INNOTECH seminar provocatively entitled "No More Schools?". After the seminar, Donald Ellson, an early proponent of programmed instruction and with experience in Malaysia, worked with INNOTECH to develop a proposal of the same title for submission to the SEAMEO Secretariat and to foreign donors. This proposal assumed that the continuing shortage of classrooms and teachers, along with the inflexibility of annual school schedules and grade levels, proved the need for an alternative system with flexible schedules, lower unit costs, higher teacher-pupil ratios, and support from local graduates, parents, and the community. The glue holding these pieces together was a system of self-instruction and programmed instruction using modular materials. The results would be an individually-paced education system with no age requirements, no grades, few formal class periods, and no defined schedule for completion -- in other words, an effective and economic system of education, especially for disadvantaged rural populations (Cummings 1986).

This proposal was endorsed by INNOTECH at a meeting in Saigon in 1974. Partly as a result of an intervention by Donald Simpson, an IDRC representative at the meeting, its sharpest edges (including its title) were smoothed down. He warned against notions of radical and massive change, such as de-schooling, calling it anarchistic, nihilistic, and romantic (Simpson 1974:14), and urged instead systematic experiments and pilot projects. With considerable foresight, he also cautioned INNOTECH

staff of the dangers of relying too much on community resources and materials produced by outsiders, of the need to absorb all current teachers, and of the necessity of building into the try-out arrangements for the diffusion of results. Most strongly, and quoting James Sheffield, he warned against new technologies which were really "exotic transplants, funded and staffed largely by outside agencies, with little spin-off on the indigenous system they were designed to help" (Simpson 1974:13-14). This last warning was not without cause; though the new project was seemingly unique in having been conceptualized and promoted by a Third World organization, "non-Third World people had a major role in its conception and diffusion" (Cummings 1986:13).

Indonesia's role in this INNOTECH planning for what became known as IMPACT had been limited primarily to the involvement of its deputy director, Dr. Winarno Surachmad, a well-known educator. The Saigon meeting in 1974 was attended by Hussein, head of what was then BP3K's task force on experimentation. Early decisions on the project in Indonesia, including the choice of Solo in Central Java as its site, were made by Yusufhadi Miarso, first head of the task force on curriculum development --the same task force responsible for the early design of PPSP. But the task force soon became two Balitbang centres -- of curriculum development under Soedijarto (with PPSP) and of innovation under Soemitro (with the INNOTECH project).

Up until this time, INNOTECH considered the Indonesian project as under its control -- in short, borrowing Indonesian schools for its experiment (Soemitro: personal communication). Over objections from INNOTECH, Soemitro succeeded in almost completely Indonesianizing the project, from its name (Pendidikan Antara Masyarakat, Orang Tua, Dan Guru, or "education among the community, parents, and teachers") to some of its basic goals. The most important was a firm movement away from de-schooling (and INNOTECH's so-called Community Learning Centre) to extending the outreach of the formal school to drop-outs and non-entrants. By late 1974, therefore, PAMONG was ready for local project design and development.

B. The Design of the Project

1. The planning process

The analysis of PAMONG in relation to Indonesia's educational problems was based primarily on considerations of economics and equity, concerns brought to the forefront by the National Assessment of Education. Indonesia needed a mass education system yet could not then afford the heavy expense of schools, teachers, and books required for such a system to exist. PAMONG's solution would be to replace teachers and books with alternative components (particularly the module) in order to increase the pupil-teacher ratio from 40/1 to 100/1 or even 200/1. The preliminary design of the PAMONG project and the further development

of these ideas was carried out by a team composed of staff of Balitbang's Innovation Centre and of the IKIP in Solo, Central Java (which subsequently was integrated into its University of March Eleventh or UNS). This IKIP was selected for several reasons -- it was within easy reach of Jakarta, had some expertise in instructional management, and had not yet had other large projects to develop.

As with PPSP, the PAMONG team was relatively young, ambitious, and, above all, inspired by the opportunity to create a new and potentially revolutionary system of education. They saw their task as a classical R&D problem -- to develop a prototype system, prove its effectiveness in the field, and then deliver the completed model to the Ministry for national dissemination. The Solo team, in particular, felt confident that this could be done, especially given the support of Balitbang's leadership, despite the complexity of the PAMONG "packet". They saw it as feasible; needed; appropriate to pupils, teachers, parents, and the community; and, once perfected, easily acceptable by the Ministry.

The pedagogical concepts behind the project -- derived from IMPACT -- represented a packet of innovations which the team was required to elaborate within the existing educational system: the use of modules, programmed instruction, community participation, and a teacher's responsibility for more than one class of children. It was assumed that children could and wanted to learn on their own; that not only teachers could teach; that children should learn at their own speed; that Indonesian teachers were dedicated and able to assume new roles without considerable re-training; that parents would encourage their children to learn and were able to monitor their learning; and that voluntary community involvement was both necessary and feasible. As with PPSP, but less explicitly, the concept of mastery learning was all-important.

This early planning process, again like PPSP, paid relatively little attention to possible constraints to the development of PAMONG. The planners believed PAMONG fit into Indonesia's long-term development goals and into the education system's concern for both quantity and quality. They considered little the possible complexities of PAMONG vis-à-vis other parts of the system (such as evolving curricular and examination policies) and other parts of the Ministry or the provincial governments, and they believed that in a relatively innovation-poor environment, PAMONG's fundamental elements (<u>not</u> a replacement of the current system, as was PPSP), once developed, would be implemented widely by the Ministry. They believed also that PAMONG was "fit" with Indonesian cultural norms -- of communal help and peer teaching (as in Islamic schools) -- and management styles (e.g., the authority of headmasters and supervisors was not to be diminished). They did not, however, anticipate the potential problems of encouraging teachers and pupils to take greater initiative. Most importantly, they did not anticipate the likely costs, not of project development, but of routine dissemination.

In much of this, the Solo team acted, to follow an Indonesian saying, as a "frog underneath a coconut shell" --concerned with life within the shell and blind to the world outside it. The assumption was that Balitbang, with its central and powerful position and strong leadership, would care for higher-level issues of politics and economics and allow the Solo team to get on with project development.

2. Results of the Planning Process

a) The project objectives

As mentioned above, PAMONG in its most general sense was charged with developing an education system pedagogically effective (with results no worse than conventional schools), economically feasible (with routine per-pupil costs less than conventional schools), and able to reach a mass audience, both of school-age children and of other children never in school or who had dropped out from school, through the use of modules and an increase in pupil-teacher ratios (Suhardjo et al 1987). These were simple, straightforward goals, ambitious in geographic and institutional coverage, and based on pedagogical principles (modular instruction, mastery learning) which had been proven valid, at least in Western contexts.

b) Contents and components

By the end of the planning process, a number of particular components had been identified as necessary to the achievement of these goals. Modular, self-instructional learning materials were to be developed for grades 4-6 for use both by pupils in school and by drop-outs at "learning posts" (patjar) out of school. Pupils could study at their own pace at school, at home, and with friends. Teachers, re-named instructional supervisors (IS), would supervise all school resources and help to "stimulate and oversee the learning process" (Setiadi and Seymour 1982:5) by coordinating the efforts of less-qualified aides (not IMPACT's adolescent volunteers) for particular subjects in grades 4-6 and for the special needs of grades 1-3, of skilled community volunteers used to make education more locally relevant, and of older children (tutors) given the task of teaching younger children. Parents and community leaders, both formal and informal, would support the school's efforts.

The core of this innovation was the module -- a technology which would allow one trained teacher, with the help of others less qualified, to "teach" more than one grade. At first the module was designed to save costs, but early in the experiment it gained the further objective of freeing other teachers to service out-of-school youth aged 10-16 at external learning posts and so of extending the reach of a primary school to more children (Boorham 1983). The module also, however, was meant to improve the quality of education offered in whatever place, and so to enrich the teaching-learning process and enhance student achievement.

These components of PAMONG implied quite considerable changes in a number of areas. Teachers became managers of a teaching-learning process which included modules as well as tutors, aides, and volunteers, and which required new methods related to more active learning by children; it was assumed that teacher training institutions would make comparable changes in their curriculum. Though PAMONG staff were not permitted by Balitbang to develop a school curriculum different from the so-called '68 curriculum then in effect, PAMONG did require a complete re-structuring of learning materials. A school's climate would necessarily become more open, free, and "active" with new methods, new personnel (non-teachers), new teacher roles, and new pupil behaviours. More self-reliant attitudes among school personnel and more interaction between teachers and pupils were to be encouraged in the project development process and, it was hoped, would continue after PAMONG became routine. Unlike PPSP, no radical structural change was envisioned in the educational system -- no 5-3-3 division, no combined administration -- but it was hoped that such an open system of formal primary education might eventually be continued in higher levels.

These changes were considered by PAMONG supporters as both very innovative and very necessary. To push students to learn in a self-instructional manner, using self-contained modules, with limited input from a trained teacher, was a considerable change. Perhaps because of this, the original PAMONG design provided little detail concerning modules, programmed teaching and learning, administration, and community participation. This lack of detail, and the simplicity it suggested, helped to convince the project's designers that it both would be relatively easy to implement and could be done so relatively quickly and without extensive adaptation to local needs.

As a result, the experimental design was a simple one. Two schools in each of four villages in one sub-district (Kebakkramat) near Solo were designated the experimental sites. Similar schools nearby were chosen as comparison sites. Indicators of effectiveness were teacher-student ratios, test results, and per-pupil costs. The result of the experiment and its evaluation would be the development of a prototype which could then be disseminated throughout Indonesia. This was the "incremental expansion" model of implementation where ambitious innovations are implemented in a gradually increasing number of schools (Verspoor 1989:6). With such a design completed, implementation of PAMONG began.

C. Implementation of the Project

1. The implementation strategy

The strategy adopted for the development and implementation of PAMONG was in many ways quite different from that of PPSP. While the latter quite clearly opted for formal structures and procedures by which

-- at a national level -- major decisions could be sanctioned by representatives of various interested parties, PAMONG assumed a somewhat lower profile. Soemitro, the head of Balitbang's Innovation Centre, quite clearly believed that its ultimate success would depend upon its merits and not its "connections", and that, in fact, the formal "stamp" of Balitbang (which PPSP had) might spell PAMONG's doom. As an experiment, therefore, it had to be "cooked" to completion and to perfection before being offered to the customer (the Directorate of Primary Education) which, in the meantime, needed to be "kept out of the kitchen". The recipe was Balitbang's; the cooking, however, was to be done in Solo at UNS, in collaboration with local education offices (from the province to the sub-district), in a way which would yield a product neither difficult nor expensive to disseminate.

In this process, a number of units and actors were involved. Balitbang, specifically a small team at the Innovation Centre, was ultimately responsible for guiding, monitoring, funding, and eventually selling the experiment. Considerable intellectual leadership, especially early in the project, also came from Jakarta. UNS was the primary technical implementor, the focus of administrative control in the first field site, the centre for most material development, the designer of the broad strategy of implementation, evaluation and dissemination, and, when other sites were added, the monitor of these activities. As such, the UNS team included a director, deputy director, a financial officer, and sections for materials development, research and evaluation, community participation, and staff support. The replication site in Bali, though officially under Solo, eventually took on a somewhat independent life of its own as it began to develop training and diagnostic materials and varieties of PAMONG utilization apart from those developed in Solo. The responsibilities and powers of both Solo and Bali increased as Balitbang attention and support waned in later years of the project. In addition to these units, headmasters, teachers, village leaders, and district and sub-district officials also had particular responsibilities in managing and supervising the innovation and in encouraging community participation.

While Balitbang and Solo team members had particular requirements as to basic project components and desired achievements, individual projects sites and their development teams had considerable leeway in altering and perfecting operational guidelines and procedures. It was considered necessary, however -- at least in the first several years of project development -- that the final product would be uniform in implementation and application. Local adaptation was permitted, in other words, only as a means of enriching the disseminated model.

2. Resources

PAMONG, as with PPSP, suffered from an embarrassment of riches, at least those of the more tangible variety. Money was available from the central government for UNS expenses, travel, module-writing and publishing, staff and salary supplements, and consultant honoraria. Provincial governments set aside local funds for additional expenses of replication sites in Bali, East Java, and Central Kalimantan. Canada's International Development Research Centre provided $140,000 for start-up expenses in Solo and doctoral fellowships and additional funds for research activities in Bali. USAID eventually provided some US $3 million, primarily for costs in Bali, and UNICEF, further support for development of the so-called "small school" model. Project staff -- experts, module-writers, evaluators, etc. -- were either provided by Balitbang, loaned full-time or part-time from UNS, or contracted for particular purposes. Logistical support was also readily available, though module reproduction and dissemination were occasionally behind schedule.

There was also considerable foreign technical assistance which was, from all accounts, very useful but not domineering. Short-term consultants, beginning in early 1977, provided needed outside knowledge and advice and wrote reports which broadened the perspective of team members, but did not directly influence major changes in the project. Three longer-term consultants provided by USAID later in the process had greater influence on the day-to-day development of the project but largely in areas of their particular expertise -- research, training, and dissemination -- rather than in the overall evolution of the project. Thus, a project which began with heavy foreign involvement, via INNOTECH, developed in Indonesia a very home-grown flavour.

The individuals and institutions involved in PAMONG had considerable capacity in project implementation. The teams in Solo and Bali were tightly-knit, with generally good, though increasingly distant, relations with Balitbang, and conflicts among the major actors were minimal. The teams (as we shall see below) became expert in adapting the project to various problems they encountered. The greatest weakness, perhaps, was the inability to carry out research studies parallel and complementary to development activities. Until late in the project, little intensive research was done on actual implementation of the innovation in the classroom, and very little research was ever done on issues such as the best format for group learning, the best teacher-pupil ratio, and the best way to present instructional objectives to pupils.

Support from local officials, teachers, and the community was high, especially among officials in Bali and Central Kalimantan. At their initiative PAMONG spread rapidly in their provinces. Teachers were also generally supportive and proud to be involved in the project, though occasionally over-burdened by project work. The community assisted in part by not objecting to the experiment (unlike in the Philippines where many parents felt the project would hurt their children's education) and in part by providing space for learning posts in village houses and community centres.

3. Implementation procedures

Procedures developed to ensure smooth operations of the project were also generally adequate. Resources were obtained by Balitbang from the central budget for needed expenses and by local teams from local governments for other costs. Monthly meetings were held at each site with participating teachers, supervisors, and officials, and regular reports were sent up the line to Solo, Balitbang, and donor agencies. The reports from the Indonesian officials, however, became less frequent as the project progressed and were often the result of rapid visits from Jakarta. Travel was also undertaken across the sites. Feedback in terms of materials development and operational details was frequent, and more systematic research and evaluation were also eventually undertaken, but not until quite late in the process. Collaboration with local officials was also well-established. Considerable training was provided to participating teachers, supervisors, and officials, and graduate training to senior team members was given through donor support.

Perhaps the most glaring deficiency in implementation was the lack of collaboration with the principal agency responsible for future dissemination of the program -- the Directorate of Primary Education in Jakarta. This was part of Soemitro's R&D strategy to "keep the customer out of the kitchen"; i.e., not to allow the Directorate to complicate or confuse the project until it was "done".

4. Project management and content

During the life of PAMONG, several important changes occurred both in management and content. They can be divided into two main periods: a relatively expansive period of project development, refinement, and replication (until 1980) and a somewhat more defensive period of increasing complexity, challenge, and even confusion.

In the area of project management, changes were frequent but not significant. Project leadership changed three times after the original director was named in 1974 -- in 1978, 1979, and 1983. None of these changes were particularly difficult ones, and the leaders, especially in the critical periods of project development and dissemination, were respected and open-minded. The Solo team itself changed as well, adding new professional staff as needed, and became a UNS technical implementation unit for PAMONG activities in 1981 and a university research and development centre for self-learning in 1984. As the university's involvement in the project grew, and as international funding (especially from USAID) and the role of international consultants increased in importance, however, the involvement of the local education officials and of Balitbang decreased.

Much more substantial were changes in content. Each of the major components went through major transformation in the first three years of PAMONG's life. This was a time of great activity and creativity, with the quite vague ideas of the original "packet" being elaborated, tried out, dropped, revised, and tried out again.

Modules. The first set of modules was developed in 1974-75 for all eight primary school subjects of the 1968 curriculum: arithmetic, Indonesian, geography, history, science, culture, religion, and citizenship. These were developed first for grades four and five (since grade six was an examination year), later for other grades, and eventually numbered in the hundreds. As these were being tested and revised, the so-called "1975 curriculum" was introduced. This curriculum, based largely on the mastery learning and instructional objectives approach of PPSP, was very different both in style and content from the 1968 curriculum and so required a re-writing of the modules. At the same time, it was decided to modularize only five core subjects: mathematics, science, Indonesia, social studies, and Pancasila (moral education), leaving skills and culture courses and religious instruction to more conventional means. These re-written modules, for classes 3-6, eventually numbered over 500 in a revision produced in 1981-82. By then it was clear that such a large number would not be acceptable to the Directorate. A condensed and further revised "second version" of 118 modules, with 60% fewer pages, was therefore developed in 1983-84. At the same time another version -- 21 modules which helped pupils use available texts -- was also being developed to meet yet further fears that the regular textbooks, produced so expensively and in tens of millions of copies, could never be abandoned by the Ministry (Horst 1984:22).

Teaching-learning strategy. Over the first three years of project development (1974-77), many ideas were tried and discarded in the crucial area of the teaching-learning process. The very first idea of altering the pupil-teacher ratio to 100 to 1, and thereby reducing the number of qualified teachers needed, proved impractical when it became apparent that teachers once assigned to schools could only with great difficulty be transferred elsewhere. The idea of using spare teachers to teach in learning posts was more possible, and this led to the concept of instructional supervisors using modules and tutors to assist in teaching. Early efforts at using local primary school graduates as tutors failed, so pupils in grades 4-6 became tutors in grades 2-3 using "programmed teaching" materials. (Grade 1 was eventually taught primarily through conventional needs). The original idea of self-pacing in programmed learning via modules, based on mastery learning and continuous promotion, proved impossible to manage (with each child needing different modules, exercises, tests, etc.) and was disadvantageous to slow learners (Nielsen and Bernard 1983:46). Group-paced learning was also tried, but proved almost as complex. Class-paced learning therefore became standard practice in 1978, with students who already completed modules helping those who had not done so. With this change an experiment ended whereby the primary school completion test was offered twice a year. Such accelerated testing did not work in a class-paced system. All of these rather complicated ideas led to the need for detailed operational guides for the many actors involved in PAMONG -- the first such guide or juklak was eight centimeters thick!

Out-of-school education. Learning posts for out-of-school youth were also developed. The primary school (or SD PAMONG) provided both teachers relieved of other duties because of the modular system and materials for these posts. The teachers arranged meetings, distributed modules, provided supervision and evaluation, and organized final tests. Difficulties in motivating and finding appropriate "customers", however, led eventually to the decline of these posts.

Community involvement. Finally, early aspirations concerning close community involvement, both official and unofficial, proved unrealistic. Volunteer resource persons were difficult to find in economically-depressed areas, and the attitudes of largely unschooled parents proved difficult to alter especially when most of PAMONG's efforts went towards school-related programming.

By 1977, after three years of somewhat aimless but eventually fruitful wandering through a variety of pieces of the PAMONG package, a basic prototype was in place: a set of modules (under revision); a learning strategy of programmed teaching for younger grades and programmed learning for older grades, with teaching done by a variety of persons; and the presence of learning posts for out-of-school youth. Results showed good grades; i.e., high pass rates both in SD PAMONG (99%) and in patjar (85%).

Under experimental conditions, it became clear that a test of this model, in more realistic conditions with less aid from the Solo team, was needed. The village of Mas in the district of Gianyar in Bali was selected for this work as being a relatively poor area of high-density population and high drop-out rates, but with an interested local government. By 1978, five SD PAMONG and 12 learning posts were in operation. USAID provided funds for this "replication" stage which led to new refinements in the modules, the teaching-learning system, and school administration, including the establishment of learning posts serviced not by SD PAMONG but by teachers added to ordinary primary schools. The prototype of a new delivery system had become part of a wider model of a complete PAMONG primary school system, to be managed by regular Ministry personnel, with manuals for management of the modules and of patjar clientele, for peer-group learning and tutoring, and for school administration. Further changes occurred in this period. With the large increase in oil revenue resulting from higher prices in the late 1970s, the Indonesian government greatly expanded its primary school system, adding some 80,000 schools and over 300,000 teachers by 1980. The need for more cost-efficient in-school education, via modules, seemed less crucial than in the bleaker years of the early 1970's. PAMONG therefore reinforced its efforts in out-of-school activities, first in Bali and then by assisting the provincial government in East Java in developing yet another version of PAMONG -- modules for drop-outs delivered not via schools but in village centres.

As the government, flush with oil money, began to envision universal primary education, greater concern began to be raised for how to absorb the last, most difficult 10% or so (perhaps 2 million children) -- mostly those children in isolated areas unable to be served by full primary schools. The idea then appeared in Balitbang to use PAMONG modules in "small schools" -- schools with three classrooms, 2-3 teachers, fewer than 100 pupils, infrequent supervision, and generally poor quality. Experiments with such schools began in 1979 in Central Kalimantan, and spread to Sulawesi and Madura in 1981. The use of modules and peer tutoring allowed teachers to set a lesson in an upper grade and then teach a class in a lower grade. Several approaches were tried with different versions of modules and different combinations of classes, and UNS became the centre for training and technical assistance for three various experiments (Suwartono et al 1985, IEES 1986, Cowell and Holsinger 1983).

Beginning in 1980 several additional and major revisions occurred in PAMONG. In many ways these attempted to counter problems which had begun to appear in the PAMONG system. Research done in 1981 showed that individual learning in older grades was not working well, so new group learning processes, via peer tutoring, were developed (Nichols and Dilts 1984, Slametto et al 1981). New student tests, training materials for teachers and, manuals for supervisors were written, and better project and student evaluation procedures were designed. More and more patjar and small schools were also established.

Despite such activities and efforts, by 1980 there began to be a rising concern, even fear, that the climate for reform in Indonesia had changed and that PAMONG, by now a more visible innovation, was on shaky ground. The reasons for this were many, some of which are similar to the case of PPSP. A new Minister had entered office in 1978; though he continued to support PAMONG with funding (and often expressed support for PAMONG in formal speeches), his commitment to the reform of educational quality was perceived as being less than his interest in the general content and direction of education. Setijadi, the head of Balitbang, was replaced in 1980 by Soeroso, a political scientist. Soemitro then became secretary of Balitbang in 1980, while continuing, with much less concentration, as head of the Innovation Centre. A full-time replacement, Soebronto (a veterinarian by training), was not named until 1982.

As mentioned earlier, a high enrolment ratio attained with oil profits had made less crucial PAMONG's increase in pupil-teacher ratios, and even its focus on out-of-school youth (from age 10-16 or more) became a disability as the pool of such youth in Gianyar began to shrink, both because they were already in patjar and because they joined a less time-consuming non-formal education program offered elsewhere in the Ministry. What became more important to the Ministry was enrolling that last small percentage of out-of-school youth in the 7-12 age bracket. Examination

scores, in comparison with control schools, also began to decrease, perhaps because the tests designed for conventional schools did not measure well the modules' content (Educational Development and Testing Center n.d., Nichols and Dilts 1984). And the major potential consumer of the system, the Directorate of Primary Education, concluded that the modules were simply too complicated and expensive for use in ordinary schools, especially in light of Indonesia's huge investment in textbooks.

For all of these reasons, PAMONG staff, particularly in Solo, began to be concerned about how to find the "space" in which to live and prosper. From 1980 to 1984, a number of activities were developed to find such space. The project team began to change the emphasis of PAMONG from quantitative, cost-saving terms to more qualitative issues of training, supervision, and refinements in teaching-learning processes. PAMONG's deputy director wrote a speech for the head of Balitbang in mid-1982 which said that the system might be used to raise the quality of general education even when it was not needed to absorb out-of-school youth. Condensed modules were created, and then an even shorter version (guidelines, rather then modules) which could be used with textbooks.

The government's new interest in "obligatory education", started in the third five-year Plan (1978-1983), was also seized upon for the further development of SD PAMONG and especially of small schools. Juklak were elaborated for both models, to demonstrate to the "customer", the Directorate of Primary Education, that they were fully-cooked and both teacher- and bureaucracy-proof. And sites for small schools and districts with high drop-out rates were identified for possible further replication.

Most importantly, the PAMONG team at UNS began to see its task as the development not of one model for total dissemination but rather alternative models of educational management and delivery, with various components (not necessarily including modules) which could be adopted as needed and as appropriate. PAMONG, once confidently touted (and insisted upon) as a total package, was therefore explicitly advertised to provincial governments, other ministries, and universities via seminars and visits as a collection of components (a "self-service counter of useful ideas") which could serve many different needs. Several different models of PAMONG were said to be under development, some without the use of modules or the SD PAMONG and many with a focus less on recovering drop-outs and more on the broader impact of the PAMONG system on educational quality (Nichols and Dilts 1984).

UNS had some success with this strategy. Though it failed to make its PAMONG unit a national centre and permanent resource for self-learning, it did succeed in selling its services as trainer and module-writer to the Ministry of Internal Affairs, to the Ministry of Religious Affairs, and to other projects in the Ministry of Education and Culture involved in modular instruction.

By 1984, therefore, PAMONG was still incredibly active and busy, with some 26 different reports and other activities completed in the second half of 1983 (Nichols and Dilts 1984: 136-137). Project development was still underway, further refinements were being made, and hopes were still high that success would follow. PAMONG was still being mentioned as an important innovation in national education meetings and long-range development plans. But further changes had occurred in various parts of the project's management and content which were to influence, negatively, the eventual fate of the innovation.

Modules. There were too many versions written to match new curricula or anticipated user demand; these versions were too often in flux and too often written by university lecturers in difficult language -- either too Indonesian for rural students or too "Java-centric" for Outer Island students. They were also easily torn, especially in their stencil stage, difficult to store and administer, and, in the developmental stage, seldom completed on time and in proper sequence.

Juklaks. In an effort to operationalize PAMONG in ways which might both guarantee its success and convince the Directorate that it could be implemented under routine conditions, the juklaks became considerably more elaborate. By 1981 several had been developed for all possible actors in the system. These were very formal in structure and hierarchical in nature, making clear who was to contact (or report to) whom for what purpose, with several detailed steps required for every phase of the PAMONG process (e.g., how to conduct the official opening of a PAMONG school, locate patjar, and motivate pupils) (Program Pengembangan Sistem SD PAMONG 1981).

Teachers. Some teachers felt that the PAMONG work of organizing and training tutors, administrating modules and tests, supervising all learning activities, etc., was too difficult. While many of these activities were eventually simplified, most at the suggestion of teachers, some resistance remained, and research showed that the longer teachers worked in PAMONG, the less positive they were about it, perhaps because technical assistance to such "veterans" was not continuous (Educational Development and Research Centre n.d.:51-57). Worst still were the actions of local education offices which transferred trained teachers out of PAMONG schools, and untrained teachers in, without consultation with the PAMONG team.

Tutors. Grade 4-6 pupils who were tutors often felt they were losing time from their own studies or, as in Bali, felt they should be paid for doing a teacher's work. They also had varying abilities and in general used particularly conventional (rote) methods to teach both younger pupils and their peers.

Education officials. Poor relations between the two ministerial administrators of primary education often caused trouble. Local officials were often reluctant to accept patjar graduates as equivalent to SD graduates, and the Directorate of Primary Education (as an observer to the process) was rather negative towards its development until it became important as a means to attain obligatory education.

Competition from other programs. As mentioned above, a major problem for PAMONG was the loss of potential clientele to another Ministry program -- the so-called "kejar" program of the Directorate General of Out-of-School Education. This program, originally designed as a literacy program for older Indonesians, claimed youth down to the age of seven once obligatory education was promoted. Such children could obtain primary school equivalency (though not the right to enter secondary school as they could with PAMONG's certificate) through a shorter, easier, and more practical program. Also, because village heads had kejar targets to fulfill, pressure was brought on drop-outs to enter kejar rather than patjar; kejar also paid extra fees to its teachers.

The PAMONG team firmly believes that it did overcome those problems over which it had control, through adapting the innovation or eliminating the troublesome components, and that it was those problems over which it had little or no control -- competition with kejar, the lack of continuity in the leadership and thus in the policy of education in Indonesia, and the lack of budgetary support for PAMONG's dissemination -- which spelled the inability of PAMONG to achieve its original objectives.

By 1984, therefore, serious doubts about the actual commitment to, and the institutionalization of, PAMONG were evident. One report on PAMONG research and development outcomes, undated but probably from 1984, ended with several questions: "Will the chairman of BP3K (be willing to) present the PAMONG/Small School experimentation products to whom?...The wisest decision may determine whether the "seeds" of PAMONG/Small School will grow, or die, at the post-BB3K period. Who will have to be strongly convinced of the necessity for the continuing life of PAMONG/Small Schools?...What factors should be made available to assure the continuing life...at the dissemination stage...?" (UNS n.d.: no page).

D. Evaluation of the Project

Research and evaluation activities were important in PAMONG, but for certain purposes only. Most effort, it appears, went into formative evaluation useful in refining the modules and juklaks and developing further the PAMONG model. This was done rather unsystematically and largely through informal feedback from teachers and pupils during monthly meetings and regular "monitoring" visits to schools when teachers discussed problems with the team. Evaluation of outcomes -- first cognitive and then affective and behavioural -- also was carried out but

rather late in the project and unsystematically. Much of the considerable research that was eventually done was not used effectively for either system improvement or "marketing", largely because of a lack of communication between the research team at the sites and project management in Jakarta and because of the team's image of itself as interested more in research than in project promotion. It was at first assumed that the success of the experiment would speak for itself and that only later quantitative results would be needed to convince officials of its worth. By then, however, other concerns (e.g., of cost) had come to the forefront (Cummings 1986).

Two other kinds of research were much less developed. "Back-up" research, or research which looked at some of the basic assumptions or key procedures of PAMONG, was seldom done. IDRC eventually funded such research (for example, on the nature of peer tutoring) but this, too, was too little and too late. More evident still was the lack of observation-based research. Studies of what actually occurred in classrooms, among pupils, and between them and teachers, were not really done until 1981, seven years after the project began, and so it was only then that researchers realized that they knew "very little about how students really use the modules, take tests, and record scores" (Educational Development and Research Centre n.d.:84) or that they did not yet have a clear concept or a detailed, operational implementation plan for the component of continuous progress (Slametto et al 1981:58).

E. Outcomes of Pamong

1. Achievement gains

Opinions differ sharply over both what gains were made and how conclusive the research on such gains was. The project team is convinced that valid results show better or equal results for PAMONG students as for those in regular schools, except in mathematics, and that such results were consistent between district-level tests and tests developed by PAMONG itself (Warkitri et al 1981). Studies done by consultants and reviews by external authors, however, stress different results.

Pass rates for grade six students were certainly comparable, but because Indonesian primary schools consistently come up with rates of 95% - 100%, this is not a particularly significant finding..

2. Delivery of needed inputs

The production and delivery of modules were consistently behind schedule, especially for the first version (1976) and when major revisions were done (1979-80, 1982-83). Module-writers were largely part-time workers, busy with other IKIP tasks, and production and dissemination were often late or incomplete. Pupils rarely received a set of modules intact and in proper sequence for a major unit of work.

Because it was difficult to keep track of which schools had received or needed which modules, replacements were also hard to provide. As late as 1982, it was reported that entire titles of some modules were missing from schools and that the team did not yet "possess an organized procedure for module distribution (Educational Development and Research Centre n.d.:41).

3. Scope and coverage achieved

Figures in this regard vary somewhat, especially because in later years small schools and other PAMONG variants were coordinated by local governments rather than UNS or Balitbang. But at its peak, perhaps 25-30 SD PAMONG existed in Central Java and Bali with some 140 or so patjar attached (though one USAID report talks of 39 SD and 608 patjar) (Theisen 1984:20); another 50 patjar were attached to 32 regular SD in Bali; and eight combinations of kejar and patjar existed in Bali (Horst 1984:25). None of these now survive. The USAID report also mentions several training booklets published; 2081 teachers, 1,479 administrators, and 913 instructional aides trained; and, by 1983, 4891 graduates produced (Theisen:20); many of the last were patjar graduates (Nielsen and Bernard 1983:4).

Officials say that at one time as many as 20,000 small schools existed in several provinces (particularly in Kalimantan and Riau, with over 500 in East Java covering over 30,000 students and 1500 teachers) but that currently (Kanwil Depdikbud 1988), 10,000 perhaps remain. East Java also records some 326 SD PAMONG with about 10,000 pupils and 800 teachers (Sub-dinas Pendidikan Dasar 1987), though some officials believe this figure to be inflated. These are learning centres held in village halls or houses, not in formal schools, to which teachers are appointed to work in patjar. These remaining small schools and SD PAMONG were funded to print modules and train teachers by allocations both from BAPPENAS (the national planning board) and from provincial budgets.

4. Correctness of use of PAMONG's components

Taking into account variants in practices which were built into different PAMONG models (e.g., teachers were the primary community motivators in small schools in Kalimantan whereas village leaders played that role in Java), it is quite clear that considerable variation also existed (and exists) in PAMONG-style schools. Even though control could be fairly carefully exercised in the experimental schools in Central Java, Bali, and Kalimantan, reports persisted in the early 1980's concerning problems with PAMONG's basic procedures. Tutors of classmates or of younger pupils taught in the most conventional ways (Woerjo 1982:43) or, worse yet, skipped over parts of their guidelines, mis-read instructions, mis-corrected their charges, and pushed classmates into re-taking tests before any remedial instruction was given. One observer concluded, "I very much doubt that programmed teaching is being

done routinely and following valid procedures" (Harianti 1983:2, 57). Another systematic evaluation done by a team member in 1981 reported that group learning was not working well, that mathematics was being taught poorly, that little interaction in classrooms was evident (despite different responses to questionnaire items by teachers and pupils), that tests were inadequate, and that module distribution was poor. His recommendations urged the PAMONG team to explain procedures better, train participants more intensively, improve and clarify juklaks (by making them more detailed and sequential), and create more and improved forms to fill out (Slametto et al 1981). And an outside expert in self-instruction, long-acquainted with PAMONG, concluded in 1983 that considerable fine-tuning of the system was needed, from improving the validity of test items and the quality of modules to ensuring that pupils learned the subject matter and not only the test (Morgan n.d.). He concluded that PAMONG was not ready for broad, national dissemination.

If the accuracy of implementation in project sites was questionable, even more uncertain was the quality of replication through the spontaneous spread of the East Java variant and later of the small school model in several provinces. This dissemination rapidly outran UNS' capacity to train teachers, headmasters, and supervisors (Cowell and Holsinger 1983). A juklak was produced to aid in this process, especially when the small school model was officially transferred to the Directorate of Primary Education in 1984; and UNS continued for awhile to assist in training activities. But reports in 1986 and again in 1987 showed serious inaccuracies: pupils chanted loudly from modules, line by line, and not at all accumulating facts, doing needed demonstrations, or formulating desired concepts, and teachers wrongly believed that modules made lesson preparation or supervision unnecessary. The researcher concluded that after UNS was no longer involved in the supervision, "the implementation of the administration no longer went as needed" and that "...what was imagined by designers of the program to be easily carried out in actuality is only pretty in the written guidelines" (Marsandi 1986:41,31).

5. Project costs

PAMONG continuously faced the criticism that it cost too much, and indeed the development costs were sizable, especially in the writing and printing of several versions of modules. A major cost study urged researchers and policy-makers to look not only at actual costs but also at longer-term effects in the distribution and returns of education and in enrollment patterns (Windham n.d.). The study itself showed that modules would routinely cost some US $10/pupil versus $7 for textbooks (assuming 40 modules or 3200 pages versus 850 text pages per grade), but that gains in teacher-student ratios (from 36:1 to 51:1) would make PAMONG cost $1/year/pupil less and, counting patjar pupils, $5/year/pupil less: a 12% reduction in costs (Theisen 1984). This study was never accepted as definitive, however, and so clear-cut evidence as to cost savings that could satisfy already skeptical "buyers" in the Indonesian "market" was never available.

6. Effect on implementing institutions

Perhaps the greatest effect of PAMONG lay within UNS itself. By the end of the project, a team of lecturers and researchers had been trained and gained experience in what they called "self-motivated learning". As one close observer of PAMONG commented, "probably of greater long-term value to Indonesian education than the PAMONG system with its many modules is the small but highly qualified PAMONG project staff" (Morgan n.d.:24). This expertise -- and the initiative, creativity, and administrative skill that went with it -- had been used in various tasks outside of PAMONG and had been recognized at UNS in the establishment of an R&D centre in that field. Based on this expertise, UNS was given a major task by the Ministry (later funded by IDRC in collaboration with the International Institute for Educational Planning) to study the role of committees established at various levels of the system to promote obligatory education, a major goal of the Fourth Five-Year Development Plan. Within UNS it also took on the task of coordinating the modularization of some 2200 subjects in eight faculties and, elsewhere, the training of all lecturers in Java, via Indonesia's Open University, in university teaching methods.

7. Affective, behavioural outcomes

When it became more evident that the somewhat equivocal data on achievement and cost were not going to gather support for PAMONG, studies focussing on its non-cognitive effects were undertaken. The emphasis changed to PAMONG's ability to provide children the knowledge, attitudes, and skills required for lifelong learning. One preliminary study in 1983 (Palgunadi 1983), which paired PAMONG and non-PAMONG classes, showed higher results for a small number of possible affective outcomes: e.g., in one of six areas in "self-study", three of six in "self-esteem", and others in attitudes to school, education, and other people (a willingness to interact with others). Again, however, this evidence -- supplemented by anecdotal evidence from primary and secondary teachers of greater self-learning skills and greater self-confidence of PAMONG students -- was a bit too little and too late and was neither promoted effectively nor, ultimately, appreciated.

F. Reasons For the Outcomes of PAMONG

It is probably true, as one team of evaluators put it, that "no experimental project as complicated as PAMONG has been known to achieve such success in the history of Indonesian education" (Setijadi and Seymour 1982). It is also probably true, as PAMONG's principal developer said, that "what succeeded was the development of PAMONG as a model, not as an innovation that had to be institutionalized and disseminated" (Mujiman, personal communication). Unlike PPSP, whose fate as an innovation was likely sealed early in its development, PAMONG did have a chance to succeed as a quite revolutionary innovation in the Indonesian

education system. It had strong supporters in important places, more than adequate funding, a motivated team of developers, and, eventually, some signs of success in terms both of geographic spread and of pupil outcomes. But its drive to wider dissemination was stopped short, and its signs of success today are limited and growing less visible every day.

1. Characteristics of the Context of Reform

The broader environment of Indonesia was not a particularly large obstacle to PAMONG. The country had a stable, though complex political system which provided space for at least the design of innovative, even somewhat radical programs. Economically, Indonesia was beginning to enjoy the benefits of the oil boom so that in PAMONG's early years, at least, money was hardly a problem as large amounts of both local and foreign resources were available for project development. Consciously or not, also, PAMONG fit well with aspects of Indonesian (or at least Javanese) culture; it promoted the practice of mutual help among pupils, in the tradition of "gotong royong", and it emphasized more the group rather than the individual. But a culture which does not encourage individualism also does not look favourably on activities which raise one individual above another, or one innovation above the routine. Nor does it encourage initiative from those at the bottom who learn instead that there is safety in awaiting instructions from the top. These cultural characteristics were to plague PAMONG -- as they did PPSP -- throughout its development.

2. Characteristics of Organizations

Organizational characteristics refer both to their socio-cultural norms and to their capacity to implement and manage change. In Indonesia, bureaucratic norms are closely related to the cultural characteristics mentioned above. In the early 1970's the more forward-looking parts of the Indonesian government were ready for change. A modicum of political and financial stability had been achieved, and a new generation of technocrats had come on the scene. This was especially true of the Ministry's research and development centre and of young university lecturers such as those in Solo. Unfortunately, many fewer of the line agencies shared this desire for change; their norms, therefore, especially in the light of the magnitude of the educational system and its tremendous growth in size, were much more traditional and bureaucratic.

In terms of the actual abilities of the implementing agencies to carry out the PAMONG project, results were mixed. Again, resources of money, personnel, and time were not at issue, but Balitbang, as a relatively new player within the Ministry, was not a totally legitimate actor vis-a-vis the other agencies, and the Centre for Innovation within Balitbang was seen by many as having a rather hyperactive and "cowboy"

style of management. As time went on, it became more and more apparent that it could not entirely keep up with the administrative demands placed on it in terms of keeping track of developments at the various project sites, resolving conflicts among them, and, most importantly, "selling" PAMONG to its eventual users.

A major organizational difficulty was the lack of stable leadership within the Ministry and Balitbang. PAMONG saw four Ministers, three chairmen of Balitbang, and three heads of the Centre for Innovation in its lifetime -- not an unusual number in any bureaucracy over a dozen or more years, but considerable in light of the consistent support required to implement a complex innovation such as PAMONG. Every change in leadership meant that a new "selling" job was necessary and that new concerns and doubts had to be overcome. Eventually, those who did the selling were more and more distant from the field activities and less and less convinced of the project's strengths; support therefore gradually withered and died.

Another major organizational difficulty was the lack of complementarity with, and support from, the other important parts of the government -- the planning centres for curricula, texts, and examinations, all within Balitbang, and the operating institutions such as the Directorates of Primary Education and of Teacher Education. The Curriculum Centre, itself in charge of the PPSP, developed new curricula and textbooks quite separate from PAMONG's work; the scheduling and criteria for school examinations were consistently inappropriate for PAMONG's approach to modules and mastery learning (as they were with PPSP); and the line directorates continued with their own reforms of teacher training and delivery methods with little reference to PAMONG. The major financial decision-maker in Indonesia, BAPPENAS, was also relatively uninformed about, and therefore little sympathetic to, PAMONG reforms.

A final organization of great importance to the success or failure of PAMONG was, of course, the school. Here, it appears that PAMONG can be little faulted. School-level factors were taken into account in PAMONG planning, and considerable collaboration existed between teachers and planners. Collaboration was also encouraged within the school in carrying out the innovation, and it appears that "average" schools could, in fact, have implemented the innovation with some success and with relatively little monitoring. PAMONG, in other words, was "school-friendly".

3. Characteristics of the "actors"

Unlike many innovations, it appears that PAMONG's difficulties cannot be traced primarily to the conservatism or intransigence of teachers. Though often reluctant at the beginning to undertake what was seen as quite complicated and time-consuming work, teachers in PAMONG

schools were soon quite enthusiastic about their newly assigned roles. As the project wound down and supervision and assistance were decreased, some of this enthusiasm died, but, in general, project teachers found the work stimulating and its results encouraging. This was not always the case in the small schools, however, where teachers were particularly poorly trained and poorly supervised. Case studies of such teachers in Kalimantan, for example, showed that teachers had only a loose grasp of what PAMONG entailed, seeing it as a way to avoid lesson planning and to neglect one class in favour of another (Marsandi 1986, Kustoro 1986).

Local officials at the original project sites, who were heavily involved in many aspects of PAMONG development, were also supportive of its activities. (As these officials were replaced, however, and as the innovation was transferred elsewhere, similar support was lacking -- less "ownership" in it was encouraged, and so the kind of local funding which might have made it survive was also difficult to obtain.) And the project planners and designers, in Jakarta, Solo, and Bali, were consistently imaginative and hard-working. The actors in the PAMONG development process, in other words, were not a major obstacle in the determination of its fate.

4. Characteristics of the Innovation

The observer of the Kalimantan teachers mentioned above concluded his study by commenting that "what is imagined by policy-makers as something easy to be implemented is actually only 'beautiful' in the text of the guidelines" (Marsandi 1986:31). What seemed simple on paper, in other words, was often much more than difficult than expected to put into practice, even in a pilot phase, and then to disseminate widely into the larger school system. The ultimate failure of PAMONG to realize its ambitions can be traced partly at least to the nature of the innovation itself, not so much as to what it was in itself but as to how it appeared to outside decision-makers.

Complexity. PAMONG within the schools was not particularly complex; it was often described in quite easy-to-follow formulas. The developers claimed that teachers could learn the basics in three days of training, and the published manuals and guidelines were, as we have mentioned, very detailed and systematic. PAMONG as a system, however, was complex, with startling new materials, structures, lines of authority, and demands on other parts of the system. What made PAMONG complex to the outside was the seemingly large number of components within the system and the fact that these tended to be put together in a complex and not completely clear way. The system evolved over time, and major changes in the modules and in teaching methods became the norm, first as the result of a clearer understanding of the system's problems and in response to the system's ever-changing curricula, eventually as an almost desperate response to criticisms of the model. The modules, finally, were never put quite "right". Also, goals of the reform

often changed -- from in-school to out-of-school, from cognitive achievement to affective changes -- and so to the watching bureaucrats (when they cared to watch), there was doubt as to what was being done. While it was apparently easy to communicate PAMONG to teachers, it was somewhat more difficult to communicate it to policy-makers, especially when it became clearer that the sustained and full implementation of the substance of the system was largely mythical, hiding behind the form of a few model sites.

Unlike PPSP, which moved somewhat incrementally from one component to another over the first several years of its development, rejecting some and refining others, PAMONG began quite soon to try to develop all of its major elements, both in-school and without, and so ended up with an innovation too large, ambitious, and, especially for local officials, costly for the available resources and capacities.

Cost. PAMONG was expensive to develop, but though formal cost studies were finally inconclusive, it is likely that routine costs would not have been high -- until the time came, of course, to develop another set of modules for another set of curricula (but even this would likely have been less expensive than developing another set of textbooks). The problem is that it was perceived as being expensive, especially in light of Indonesia's massive investment in textbooks, and it was never really understood that the modules were meant originally to replace textbooks rather than to be an add-on cost. Neither BAPPENAS nor the Directorate of Primary Education was ever really convinced that PAMONG was financially feasible. The irony is that whatever costs there might have been in materials development would likely have been over-ridden by savings in teacher salaries.

Validity and feasibility. PAMONG was, per se, technically valid; pedagogically, it worked; and teachers recognized its "worth". It was also feasible in its pilot stage, but this feasibility was never accepted by decision-makers. In the early years, when PAMONG's goal was to greatly alter teacher-pupil ratios and therefore reduce drastically the number of teachers required, it became clear that this was not feasible. Teachers were not only bureaucratically entrenched; they were also seen as critical links in national integration and as important positions for upwardly mobile youth in rural areas. Later, the system as a whole was seen as simply not having intrinsic "merit", as not being worth the effort or cost. As a team of evaluators wrote, "PAMONG implementation demands that regular primary schools change their original structure, teaching approach, and management procedures radically. Schools converting to PAMONG must become managing, learning, and resource centres. Teachers are to manage a new style of learning (modular instruction) within them; link them to the PATJARs; and manage volunteer teachers and assistants from the communities" (Setijadi and Seymour 1986:13-14). And this change was seen by both provincial and national bureaucrats as neither useful nor necessary, especially in light of the

unproven results of the innovation and of a growth in teacher supply to the point of overabundance.

There was also criticism of the materials as too academic and detailed and of the system as a whole as perhaps feasible for better-trained teachers such as those in semi-urban Solo and Bali, but probably too complex for poorly-trained teachers in more isolated areas.

Conformity. PAMONG conformed to much within the Indonesian education system: to the perceived needs and capacity to change of at least the better teachers, to indigenous (at least Javanese and Balinese) models of interaction and of learning. But it did not conform particularly well to bureaucratic norms. Its rhetoric promised too much at the beginning, in too loud a voice, a rather unforgivable sin, and could never subsequently rid itself of the label of "non-conformist".

5. Characteristics of the Innovation Process

It is in this set of factors relating to the process of education change where most attention must be paid. PAMONG's various kinds of "success" and "failure" were due largely to the nature of the process through which it was developed and implemented.

Organization and management of the process. Many mistakes of management were avoided by PAMONG during its life. Teachers were carefully trained and supported, at least at the original experimental and replication sites, and the various management teams in Jakarta, Solo, and Bali were well-organized and relatively efficient. But a number of other managerial issues plagued PAMONG throughout its development. The module development process was never very effective with timetables not met, delivery delayed, and effective means of recording module supply never attained. Systematic monitoring of the innovation was not carried out in the early years of development when clear evidence of results might have been more persuasive; when monitoring did begin in the early 1980's, it was seldom well communicated not appropriately "packaged". Feedback from teachers in regard to individual modules was used well but other information was not sought concerning how well the system was actually being implemented. Quite late in the process it was found that "group interaction was almost nonexistent, teachers' and tutors' roles were unclear or unrealistic, confusion existed with respect to promotion and grading..., gaps between faster and slower students were widening instead of narrowing, etc. In short, the dazzling innovation called PAMONG was an emperor who was only partially clothed" (Nielsen and Bernard 1983: 9). Structures and procedures had been emphasized rather than the process of teaching and learning, and PAMONG ideals had been confused with PAMONG reality.

Systematic documentation of progress and results was also not carried out, at least in the critical early years of the innovation. It was assumed that the eventual results, as well as the clout of Balitbang and the support of the Minister, would carry the day -- would assure the success of the "dish" once it had been "cooked" -- and thus detailed elaboration of the model became more important than its marketing. Given the rhetoric of the early years of PAMONG, when it was meant to revolutionize the system, and then the inward-looking fine-tuning of the middle years, the discoveries at the beginning of the 1980's that the emperor was half-naked and that support for PAMONG was weaker than expected represented a considerable shock. It then proved to be too late to save PAMONG as a system no matter how active and outward-looking the developers began to be.

Another problem with management related to relationships with other Indonesian agencies. PAMONG's eggs had been placed in the Balitbang basket, but "as BB3K's grants began running out and its status was in a state of decline, the line bureaus began to question the value of several BP3K experiments including PAMONG" (Cummings 1986:42). PAMONG had not been sold well and therefore it was not understood well. Misconceptions about its cost and about the nature of its modules were common, and it was eventually quite easy to withhold support. By the time the dish was ready in the kitchen, in other words, the restaurant was nearly empty, the most important customers having moved elsewhere for their meal.

One of the causes of these inter-agency difficulties relates to the foreign agencies involved in PAMONG. USAID came in with considerable force, expecting to find a model ready for wide-spread dissemination. This was not the case, however, and much of its funds and resources went into perfecting the system and then in trying to prove its worth. What neither it nor the Ministry was willing to do, however, was to develop over the long-term the capacity of the PAMONG centre in Solo as an institution devoted to the ongoing development and supervision of PAMONG activities. Promised USAID fellowships could not be absorbed, and Solo's hope of becoming a national centre of self-motivated learning was never realized. Once its funds were exhausted (as well as those from IDRC for research activities), PAMONG was abandoned to the government's resources, and in the climate of the day, and given BAPPENAS' ill-informed skepticism of the project, these were extremely limited.

Management style. The above relates closely to management style. The Solo PAMONG team was proud of the "ownership" of the project it gave to local schools and district offices, and the Jakarta team, of the control it gave to Solo and Bali. The ultimate failure of PAMONG to achieve its full objectives in regard to the education system as a whole, therefore, was not because it was not "owned" at the bottom, at least at the original project sites, but because it was not "owned" at the top, by those who eventually had to implement it. In regard to the adaptability

of the team to modify goals and methods, there is no doubt this was present. Operations were refined constantly (at the expense, perhaps, of enriching content), and new types and forms of modules were renegotiated frequently. Creative adaptation, therefore, became the rule -- and perhaps part of the problem as well. With all the changes occurring, it was at times difficult to identify the core being protected. Eventually modules became mere guides to the textbooks and the caution was raised that without modules, "there will not be much left of PAMONG except the name" (Setijadi and Seymour 1982:22).

Philosophy of change. Any process of innovation is underlain by a philosophy of change: technological, political, or cultural. PAMONG, perhaps, was schizophrenic in this regard: quite cultural at the school level, refining, changing, perfecting; but quite technological at the national level, pushing ahead with a particular and rational development plan and quite oblivious to the necessary interactions with other agencies and agendas.

6. SUMMARY

Did PAMONG succeed or fail? Of all the innovations examined, PAMONG is the one about which this judgment is most difficult to make. Many claim it a success. One evaluator praised its fulfillment of its R&D mission; it solved a real problem, found an appropriate system, developed a clear experimental process, encouraged collaboration with local teachers and officials, and ultimately encouraged parents and pupils to take education more seriously (Suwartono et al 1985:70-71). A USAID reviewer discussed the potential reforms it explored: flexible schedules for rural and urban students, the reduction of repetition and drop-out rates, the decentralization and therefore more dependable distribution of materials, teacher-proof methods for children of poor areas, the affective gains to tutors, more standard and therefore equitable education, and less wastage in the system (Theisen 1984). PAMONG did gain specific mention in the Fourth Five-Year Plan; it was the subject of an inter-Ministerial decree relating to obligatory education, and the model it developed in Bali became an important means to this end; its "technology" -- peer-group teaching, cross-age tutoring, interactive supervision, community participation, and the modules themselves -- has found its way into the system just as several PPSP components did; and thousands of small schools still function with PAMONG modules and hundreds of East Javanese community-based PAMONG centres exist, all with local government funding.

But contrary to its expectations, PAMONG has ended up with only "a place on the edges of the system where more conventional delivery systems have failed" (Cummings 1986:43) and "assigned a more modest role: that of serving marginal groups, school drop-outs, and children in remote villages who cannot be reached by the conventional school" (Nielsen and Bernard 1983:5). And even this role is threatened. Though statistics

are not clear on this point, many believe that the absolute number of small schools is dropping rapidly, if not by formal title, than by their use of PAMONG modules, and that the PAMONG variant in East Java is more impressive on paper than in reality. Of greater concern is the extent to which the government -- national or local -- is willing to continue printing modules, to revise them substantially to mesh with the 1984 curriculum, and to guarantee better supervision than is now provided by the Directorate of Primary Education. As the principal PAMONG developer wrote, "if the Fifth Five-Year Plan does not have a budgetary allocation for the revision or reproduction of small school modules, the imperfect institutionalization of small schools will certainly stop....If modules are not prepared, the supervision of the operations of small schools which use the modules now will also not operate, and...so all of the development efforts of the small schools by Balitbang and UNS for several years will be 'totally a waste of time and resources' " (Haris Mujiman, personal communication).

But then who knows? As the Indonesian education system continues to expand, with universal junior secondary education now proclaimed; as mass, and perhaps self-motivated, learning becomes more important in this expanding context; and as the process of developing and printing generations of new textbooks for literally tens of millions of students becomes more and more burdensome, perhaps the ideals and practices of PAMONG will be remembered and appreciated even more than they are now.

V. STUDENT-ACTIVE LEARNING/PROFESSIONAL SUPPORT SYSTEM (CBSA-SPP)

A. Background and Project Initiation

PPSP and PAMONG took up the energies of Balitbang during most of the 1970s, the former primarily within the Curriculum Development Centre, the latter within the Innovation Centre. By the end of the decade, however, it was becoming clear that PPSP, for all of its often indirect effect on the education system's structure, would not lead to a widespread change of actual classroom practice. Evidence was accumulating that as the quantity of primary education had increased in the previous several years, its quality had not kept pace. Despite the new curriculum of 1975 with its emphasis on systematic lesson planning; despite the massive amount of "cascade" training which had attempted to implement this curriculum; despite the millions of new textbooks and teachers' guides printed and disseminated, it appeared that the nature of teaching and the quality of the education produced had changed very little.

Intensive case studies of primary education and of teacher training (e.g., Shaeffer 1979), as well as the experience of ministry officials and local researchers, showed that teachers continued to teach rigidly and didactically, with lectures and rote questions and answers; did not understand the new curriculum; did not encourage problem-solving; used the blackboard as the only teaching aid; and provided little individual attention to pupils. Also, research on the outcomes of schooling had shown that between-classroom differences were more significant than within-classroom differences; it was thus concluded that the role of the teacher continued to a very important one, and that good teachers (with good skills and good inter-personal relations with pupils) could make a crucial difference in the outcomes of the pupils taught.

Encouraged by Beverly Young, a British Council officer attached part-time to Balitbang, the Curriculum Development Centre of Balitbang held a seminar in November of 1979 to discuss the quality of primary education. Attending the seminar was Hugh Hawes, a curriculum and materials development specialist from the Institute of Education at the University of London, and a number of experts from Indonesia. Staff of the PAMONG project in Solo and from the Innovation Centre of Balitbang were not at the meeting.

The direction taken by the meeting, clearly inspired by Hawes' analysis of the problem, was towards a focus on encouraging "education workers at local levels to intervene directly in order to effect quality improvements by adapting and enriching and adding to central government materials and programs" (Hawes 1982:4). This meant better supervision -- not the authoritative, hierarchical, administrative supervision of the Indonesian system, but rather one more professional and collegial in nature. Such supervision would be linked to local curriculum development, attempt to change the attitudes and encourage the creativity

of individual teachers, and have a conscious change of emphasis "from supervision based on advice from 'superior' agents (the inspectors and heads) to 'inferior' workers (the class teachers) to support for teachers in the field" (Hawes 1982:8).

When the question arose concerning the content of this new supervisory relationship -- what was to be its results -- the seminar took up the ideas of another British consultant, Wynne Harlen, a science teaching specialist who had been working with the Curriculum Development Centre on a project in Cianjur, West Java, in order to develop "process skills" or skills which focused on student-active learning. The decision to marry improved supervision techniques with student-active learning in a pilot action research project was the ultimate outcome of the Balitbang meeting (Soedijarto 1979).

These ideas were quite new in the Indonesian context. The World Bank had been working for several years with attempts to reform the primary school teacher training institutions (SPGs), in part by encouraging the introduction of more student-focused methods; it had proven difficult, however, to alter the ingrained habits of SPG tutors. The Bank was also involved in a secondary school project which encouraged more classroom-based in-service training, but this was seen as part of a centralized, rather than grass-roots, attempt to bring about change. The ideas of Hawes and Harlen, which found fertile ground among researchers and policy-makers quite desperate for better solutions to enduring problems (but solutions which could also be found in somewhat different form within PAMONG), were therefore very important.

B. The Design of the Project

1. Planning process

A core group within the Curriculum Development Centre, many of whom had been closely associated with PPSP, was given primary responsibility for developing the new project. They began with several key assumptions. The first, no doubt coloured by the PPSP experience, was that the working model to be developed had to build upon and modify existing practice, and more or less within the existing structure, rather than start anew, and that the eventual dissemination model should be neither too costly nor too sophisticated.

Another major assumption was that teachers both were the primary agent of better education and had untapped potential for change. They were creative, able to facilitate more active learning and choose suitable methods among a large repertoire of skills, and waiting to be freed from the heavy hand of cultural and bureaucratic constraints. Such freedom would come in part from a new relationship with their supervisors who would help them not as superiors and in formal training courses but as peers and while they were actually doing their job. Such supervision would no longer be divided into administrative and professional pieces,

but would be closely tied to curriculum development and everyday practice and, above all, would be characterized by "integrated support". It would derive from several sources including school supervisors, trainers, headmasters, other teachers, and the community at large (Balitbang 1988:14), thereby inspiring greater openness to change, more positive attitudes, and greater enthusiasm for raising the quality of education. This integration could be achieved to the extent that it was based on "bottom up" expressions of need and solutions to these needs.

Another assumption was that this reform could be based upon more active learning processes -- that pupils could be taught to no longer "sit, listen, write, and memorize" (DDCH, in Indonesian), but rather to use more active learning methods (CBSA). This has been defined as the "situation where teaching-learning activities in or out of class are carried out so that teachers as well as pupils work in active ways. More broadly this can be seen as an approach of active teaching and learning" (Balitbang 1988:5).

One further assumption was the need to vary the model by context. Urban, rural, and isolated settings were expected to have quite different characteristics and therefore need quite different support systems. And all units and projects of the Ministry (the textbook and examination centres, the textbook project, the teacher training project, etc.) were to be closely involved in the experiment.

The style of the process of planning for this innovation was quite markedly different from that of PPSP or PAMONG. It emphasized slow, gradual, and ihcremental change, at least in its early years, and recognized the need for considerable interaction both at the field sites and among the planners and units of the Ministry. As one planner wrote, it is a "loose, untidy, amoebic creature,...a project built around an idea, and seeks not to try out a model but to evolve one through practice. Nor does it set out to explore the viability of an alternative educational pattern as the development school project did, but rather to help an existing sub-system...develop and evolve" (Tangyong 1981:33).

The planners took into account a number of important aspects of Indonesian society and government. They were sensitive to the complexity and political nature of the bureaucracy and to the need to try to involve it early on in the development of the project. They saw the match between the cooperative style of their enterprise and the political and cultural ideals (at least on Java) of mutual help (gotong royong) and lengthy consultation (musyawarah, although they overestimated the ability of Indonesians to work around or within a system that championed hierarchical decision-making and uniformity of outcome. They took into account increased interest in local curriculum options and the renewal of teacher training, and did not (unlike the planners of PPSP and PAMONG) reject working within the current curriculum and textbook systems. They understood well the needs and problems of the "average" Indonesian school and teacher and foresaw very clearly the need to work within very limited development and routine budgets.

2. Results of the planning process

a) objectives

The planning process led to a number of objectives. Most generally, the purpose of the CBSA-SPP project was to develop "a system of clear and continuous professional support for teachers so that they and their pupils could create a teaching-learning situation which could genuinely develop aptitude, enthusiasm, and creativity of the children as much as possible along with training them to enjoy work and receive and value the opinions of other people" (Balitbang 1988:6). More specifically, the project was to:

a. develop a model to raise the quality of teaching through improving professional support for teachers and implementing student-centred active learning;

b. evolve and perfect the model through a step-by-step experiment; and

c. develop a national plan for perfecting the system of professional support for teachers which could clearly be implemented to raise the quality of primary education, which could be implemented within the constraints of the government's budget, administration, and personnel, and which would be flexible and effective within the educational context and environment (Balitbang 1988:15-16).

More operationally yet, and in the words of a member of a provincial team implementing the innovation, its objectives were to raise the quality of teaching and learning; improve professional assistance; increase the quality of supervisors, headmasters, and teachers; raise the absorptive capacity and activity level of pupils; lower the drop-out rate; improve school facilities; and raise the consciousness of the community in regard to primary education (Soewono 1987:1).

These various statements of objectives are not particularly informative or precise. In many ways they appear quite simple (perhaps part of their appeal to policy-makers and, eventually, politicians) but in reality are rather complex and multi-ended, able to be interpreted in quite different ways by quite different people. They were certainly ambitious and, within their own framework, quite valid and conceptually sound (student active learning has been around a long time), but, when put into operation, quite difficult to achieve.

b) contents and components

The student-active learning part of the innovation focussed on several particular teaching and learning skills. These included understanding the objectives and purpose of learning; recognizing children as individuals, with particular interests, special abilities, and learning difficulties; using classroom organization and methods most appropriate to the type of learning being undertaken; developing the

ability to be critical and solve problems; developing the classroom as a stimulating environment for learning; using the environment as a learning resource; and providing good feedback for better learning. There is, again, nothing particularly new about these ideas; most of them would have been taught to teachers in their pre-service and in-service training. Only a rather heavy emphasis on the so-called "muatan lokal" or local content of the curriculum, early a part of the innovation but reinforced by the strong personal interest of the Minister, was rather new to the teaching-learning process.

What was new, however, was the way in which these skills were to be -- once and for all -- inculcated into Indonesian teachers. This called for the component of supervision. First, models of good schools, with the best of a sub-district's class and subject teachers, were to be established upon which better supervision could be based -- supervision in which the local education offices played a major role (unlike in PPSP and PAMONG). This quickly gave way to the idea of teacher clusters or clubs -- teachers grouped by class level or subject expertise from seven or eight nearby primary schools, who would meet periodically to discuss problems, prepare learning activities, make teaching materials, and watch and comment on each other's teaching. These meetings were to include supervisors and headmasters, participating as equals rather than as superiors, so that a new mood of collegiality could be encouraged, thus breaking down the administrative and authoritarian nature of supervision. Supervisors and headmasters were to have their own peer groups, which would meet to discuss common problems. A "centre for teacher activity" was also established as the site for meetings, training workshops, and the storage and display of innovative teaching materials. Training courses, previously held only at the district-level and usually organized by provincial officials, were also to be held at the sub-district and school cluster level and planned by local committees to meet more immediate and locally-relevant needs.

The core of the idea, therefore, was that local, practical, school-based, continuous, and participatory support for teachers could motivate these teachers (and their supervisors and headmasters) -- could free them from the usual constraints of the system and the culture -- so that they would utilize more student-centred active learning methods.

The changes expected as the result of this project were quite significant. Most importantly, perhaps, teachers were expected to possess many new skills: to plan learning activities more effectively, to understand goals related to thinking processes, to be able to differentiate among pupils' abilities, to teach with a variety of methods, to link school with the environment and use it and pupils' experience in it as learning materials, to use more interesting teaching techniques, to receive feedback from, and provide it to, pupils, to assess pupil outcomes (including affective ones) on a daily basis, and to continue to improve teaching based on previous experience (Balitbang 1988:36-38). Many of these changes were meant to be reflected in pupils,

so that they, too, would feel greater self-confidence and more courage to express their opinions.

While these were not necessarily new skills in the pantheon of those supposedly taught in pre-service and in-service courses, they were new in the real world of teacher training, which in both the SPGs and in the extensive in-service training of the mid-1970s treated teachers and trainees as passive recipients of knowledge.

The innovation foresaw no new curriculum except that meant to be developed locally, and at first, no major changes in educational technologies or formal delivery systems -- no modules, for example -- except for the introduction of group work as one of many methods related to student-active learning. More significant were the expected changes in the management of the education system and the climate of the school which would result. While no major structural change was anticipated, the CBSA did call for increased responsibility at the school and sub-district level. Such decentralization, very much in line with political developments elsewhere in the government, did not really transfer power from the centre to the periphery, but did increase the ability of local officials and educators to add relevant curricular items and organize relevant teacher training activities. This went hand-in-hand with the attempt to introduce more open, collegial, even democratic relationships among teachers and between teachers and their headmasters and supervisors. Knowledge -- and therefore authority -- was to be sought together and shared rather than held as the property of those higher in the system. The new roles of supervisors and headmasters, and the new functions of the SPGs and the Teacher Centres, were meant to make the structure and practice of education much more horizontal and integrated in nature.

Ultimately, even without calling for structural change, this characteristic of the CBSA made it quite a radical innovation -- not in its pedagogy, which was based on traditional concepts of good teaching, but rather in its "sociology" wherein the relations among actors and between levels of the system were to be quite radically changed. No longer were teachers to act "asal bapak senang" (so that "father" is happy); rather, individuals at quite different levels of the system were to act based upon a more objective paradigm which encouraged frankness and clarity in relationships (Semiawan 1984).

The plan which was meant to implement these changes was not -- and has never been -- elaborate and detailed. As mentioned above, it espoused flexibility and variety, quite clearly expecting different patterns of implementation at different sites. This was clear even at the beginning of the project when a pilot site was chosen in the Cianjur district of West Java. Close to Jakarta and to the IKIP in Bandung (which was expected to play a major role in its development), with a dynamic head of the local education office, it was a wealthier district than average in Indonesia, but within it was considerable contrast

between levels of development. Several sub-districts and schools were therefore chosen for the experiment in quite different parts of the district and, in 1980, the project began -- just about the time when both PPSP and PAMONG were at their peak of activity but also when it began to be suspected that neither would fulfill the expectations of their developers.

C. Implementation of the Project

1. The implementation strategy

Though the objectives of the CBSA-SPP and the details of how to achieve them were somewhat vague at first, expecting that flexibility would dominate, the general implementation strategy for the project was quite clear. It was meant to grow slowly, from the bottom up -- from one area to another, and from a survey of actual practice to a more general model, then to replication in selected other districts, then to a systematic evaluation after five years, and finally to a national plan. This was a strategy of "incremental expansion" (Verspoor 1989), similar to that tried in PAMONG. Plans were laid for expected cost, the responsibilities of various offices and levels of the system, and the expected implications for research and individual and institutional capacity-building. Thus, 60 schools were identified in three sub-districts of Cianjur as core schools, with others as so-called "satellite" schools, and a series of training activities for education office and Balitbang staff was carried out in London with ODA funds and later in Indonesia for education officers, headmasters, and teachers.

The Curriculum Development Centre at Balitbang formed a project team whose purpose was to guide the project, train the critical actors, and develop manuals and guides for teachers and headmasters. The local IKIP and SPG were to provide expertise in primary education methods and training for project staff; the local provincial education office provided funds; and the Ministry of Education staff at the district and sub-district level formed working groups to help establish and monitor the various project activities, especially the Teacher Centres and the clusters. Given the flexibility with which operations were to be developed, few detailed procedures were worked out at Balitbang for attaining project objectives; rather, with Cianjur itself, and even moreso across the later replication sites, considerable adaptation was the rule.

2. Resources

Unlike the glory years of PPSP and PAMONG, the CBSA-SPP has always suffered from a lack of resources. This was partly by design, based on a desire to work within likely financial constraints at the time of further dissemination. Thus, few new investments were anticipated even from the beginning. While some requests for additional resources were granted (such as buildings to house the Teacher Centres), others,

such as the hiring of subject specialists in each district, were not. ODA covered many of the major investments required, and Balitbang provided staff time, but otherwise most of the financial resources came from local sources. While the first year or two of the project were quiet ones, as the leadership of the Curriculum Development Centre and of Balitbang changed, the project was revived in 1981 and began to receive at least some of the resources required for further development.

The Balitbang team, advised frequently by Hawes and colleagues from the University of London, were skilful in developing the project and encouraging local support, at least at the school level. They also developed a system of monitoring which, at least in the early stages of the project, included frequent meetings in schools and Teacher Centres, thorough record-keeping, and periodic project reviews by both inside and outside experts. They also developed a short "feedback loop" whereby low-cost, formative, and locally-based evaluations were regularly carried out (Hawes 1982:18-19).

While they had strong support for these efforts within Balitbang and within the local office and schools in which they were working, they were much less successful in obtaining the assistance of the local IKIP and SPG, the provincial education office, and the directorates of primary education and teacher training in Jakarta. The IKIP in Bandung had little interest in primary education methodology, and a British consultant sent there to help build such an interest lasted only a short while before ill-health and indifference forced him home. The SPG was little better; while student-active learning was taught under pedagogical theory, it was seldom applied in any subject specialties, so trainees continued to be graduated who then had to be re-trained once in a CBSA school.

Despite these problems, the project team was able to develop effective procedures for training its staff and those of the implementing offices, for carrying out evaluations, and for encouraging the further development and evolution of the innovation. They very clearly were able to have the reform seen as something "owned" by local teachers, headmasters, supervisors, and education offices.

3. Evolution of project management and content

Though the CBSA-SPP project is still very much "in process", it has changed in very fundamental ways during its life. First discussed in 1979 and officially begun the next year, it took another year for it to receive enough attention and interest from within Balitbang to move forward. From 1981 to 1985 it experimented in Cianjur with various approaches to the issues of interest. It developed training materials and methods which, like the innovation itself, were active and participatory in nature; it organized training courses for project staff and pilot school staff in London and in Cianjur; it tried out various ways to hold teacher cluster meetings, to use the Teacher Centres, and to

group schools and teachers, in general moving away from the idea of one model school reaching out to others less advantaged to a system whereby all schools were considered potentially of equal quality; and it developed in greater detail ways to implement active learning.

As the result of such development work and generally positive evaluations, the project began to be publicized outside of Indonesia, notably in a meeting in Bangkok at which the head of Balitbang was a participant. Surprised by the attention paid to the project, he visited Cianjur on his return, accompanied by several other officials of the Ministry and with considerable publicity. This was followed by visits of important parliamentarians and soon, by district officials, headmasters, and teachers from throughout Java and beyond. Based on such popularity, the decision was made in 1984 to replicate the innovation in other sites where conditions (particularly the support of the local education office head) warranted. Thus, it moved to the province of West Nusa Tenggara in 1985, to West Sumatra in 1986, and then to Lampung and South Sulawesi in 1987.

In each of these places, somewhat different components and monitoring structures were developed. In one province, for example, all teachers in the model schools were trained at once; in another, only the headmaster and three teachers. In one region, clusters began to meet weekly, on Saturdays; in others teachers attended clusters once every 4-6 weeks, sometimes those devoted both to their particular subjects and to the grades they taught. In some regions, the innovation was spread through a system of "centre" and satellite schools, with teachers of the latter taught by teachers from the former in very short, locally-designed upgrading courses; in others, subject specialists were named who could provide extra advice as needed.

As the structure and function of CBSA support system changed, so did the nature of the active learning component, but in a less favourable direction. Many teachers, unable to function in a setting which called upon them to use their supposedly pent-up creativity to design appropriate methods and then choose among these the ones needed for a particular occasion, became fixated with one or another recommended methods, especially group work and worksheets.

Originally seen as only one means by which the innovative teacher could activate students, the small group became the hallmark of CBSA. Pupils were moved into groups of 6-8, in a circle (which in richer parts of Cianjur led to specially designed swivel chairs), and then given all assignments as a group, usually with one pupil as the leader to record results of a particular lesson or activity. The worksheet, originally meant as a means by which teachers could introduce a lesson and set the stage for a number of different kinds of activities (including cutting out pictures from magazines or going into the school compound to look for science experiment material), became instead a detailed outline of the lesson or even a test which pupils would fill in during the course of the

lesson so that the teacher could determine what each had learned. As these over-simplifications began to appear in the replication process, the goals of the project developers were at risk of becoming seriously distorted.

At the same time, however, that such varied replication was occurring, a unique phenomenon took place in the country. As described above, the fame and "success" of CBSA spread like a "bushfire". Teachers and administrators from non-CBSA schools in Cianjur began to visit a "real" model of the innovation as represented by the pilot schools -- then from other districts in West Java, then from other provinces on Java and finally from other islands. Busloads of teachers began to appear, their trips sponsored by their local education offices or sometimes paid for by the teachers themselves. Literally thousands of such visitors arrived in Cianjur each year, pushed by local authorities or pulled by the attraction of what seemed to be a relatively cost-less yet successful innovation. Pressure mounted for immediate dissemination throughout Indonesia.

Faced with such demand for spontaneous dissemination (as opposed to limited replication), the Ministry had to act. First, while confirming that Balitbang would continue to develop the model in only a limited number of provinces, in districts that seemed particularly ready for the innovation, it decided that other demands for Balitbang involvement would be met only in areas that could use local resources for the dissemination (Hawes 1986). The CBSA model began to be taught in the larger, annual upgrading courses for supervisors and teachers organized by the Ministry. Then, against the wishes of Balitbang, it was decided that CBSA would be introduced into one cluster of schools in each sub-district in every district in Java and in at least one cluster in a district in every other part of the country -- with the numbers to increase in subsequent years. When funds were no longer available for the annual upgrading courses starting in 1987, the Directorate of Primary Education prevailed upon the project developers to write manuals and record cassettes which explained CBSA approaches in the four major subject areas. (Neither a manual nor a cassette, however, was developed for the professional support part of the innovation.) With these materials, and with local training of teachers, headmasters, and supervisors -- often without the help of Balitbang staff -- a quite rapid spread of the innovation was effected. The real result, however, has been a very uneven pattern of dissemination, from quite large programs in some provinces to virtually nothing in others.

Thus, by the late 1980's quite uncontrolled dissemination was taking place in many parts of Indonesia and somewhat more controlled replication in a smaller number of provinces. Even in the latter, however, schools which were not a part of the planned replication sequence were joining the innovation in large numbers -- all of this without the "models of good practice" and the establishment of resources in local SPGs and IKIPs which more systematic dissemination of the

innovation required. While the University of London and Balitbang always had been concerned about the effort required to bring about fundamental changes -- the needed inputs of time and expertise, the need to train cadres of innovators and establish teacher centres, the encouragement of intra-Ministerial cooperation, the development of training materials -- the battles they fought to "make the country aware of the realities of effecting such fundamental changes and the need to build gradually upon success rather than attempt changes in advance of the resources available to ensure that they can work effectively" were largely lost (Hawes 1987:6).

This style of evolution -- this press to expand rapidly within and without the planned replication sites -- has led to a variety of problems. Structurally, the traditional rigidities of the Indonesian bureaucracy have crept into the innovation. Even in one replication site, in West Nusa Tenggara (NTB), very formal responsibilities and hierarchical arrangements have been developed for committees at each level of authority, with rules laid out for how each committee is formed, structured, and even disbanded and very clear regulations for who reports to whom (Soewono 1986). Relations with local SPGs and IKIPs have never developed particularly well, as the former maintain that they already are teaching active learning in their courses and the latter are seldom interested in primary education methodology. (A recent decision by the government to phase out SPGs may eliminate one tendentious relationship in CBSA development.) And while motivated education officials at the local level have played important roles in the relative success of the innovation in some sites, their over-eagerness in others has led to only shallow implementation. To some, the sooner schools in their areas can be labelled "CBSA" -- an innovation obviously appreciated by the Ministry, the Parliament, and parents -- the greater will be their reputation for producing visible results.

Other problems have emerged in the area of teaching and learning. Rapid dissemination has meant that the actors of the innovation, in schools and local offices, have often not fully understood or internalized the intent of the innovation. Active methods have been interpreted to mean only group work when it is clear that much of the required curriculum depends on some individual activity. The worksheet, designed to be developed by individual teachers in order to set creative learning tasks for particular groups of pupils, and already subject to considerable distortion by teachers even in controlled replication sites, has in some cases become instead a detailed plan for each lesson and a test to measure pupil achievement at the end of the lesson. The writing of standard worksheets for all classes in a particular area has now become the main goal of many teacher clubs -- clubs which at the beginning were meant also to provide general support to teachers and to develop teaching aids, discuss common problems, and experiment with, demonstrate, and criticize alternative solutions to these problems. In East Java even greater standardization is being encouraged by a private publisher which is producing a monthly booklet

for sale to teachers called "Let's Learn in a Group". It presents model worksheets for group learning for all subjects in the upper grades based on questions on a particular lesson (true-false, multiple choice, etc.) in order to ensure that teachers meet curriculum targets (C.V. Senna 1988). And the low-cost nature of the innovation -- while still valid when seen from the national government's perspective -- is becoming increasingly less true as the teachers themselves, or their pupils, are now compelled to photocopy numerous copies of the worksheets for use in class lessons.

This is all not to say that considerable achievements have not been made. Particularly in the replication sites, but also occasionally in areas of more unsupervised dissemination, it has become clear that supervision has become more professional and more integrated across school clusters, that decisions (the organization of training, the interpretation and operationalization of the new curriculum, the generation of new and locally relevant teaching material) have begun to be taken at the local level, and that more student-active methods have begun to be used.

D. Evaluation of the Project

Research and evaluation have been systematically built into the CBSA project. Though adequate baseline data were not gathered at the original site in Cianjur against which later gains could have been measured, quite systematic assessments of the development of the innovation, in classrooms, schools, and clusters, were conducted. This has been carried over into the other replication sites, in part because of the need for (and the luxury given to) the British consultants and donor agencies to record clearly the results of their work. The emphasis in these assessments has been on what must be learned in order to develop feasible and expedient means to replicate the project, not on what were considered to be extensive classroom observation methods or expensive and infeasible experimental, pre- and post-test research (in part because the rapid spread of the innovation made an "uncontaminated" control group difficult to find). Rather, a low-cost, well-organized and continuous local system of monitoring, through meetings with teachers and other officials, detailed record-keeping, regular project reviews, and independent observation of the work, was developed (Hawes 1982, 1986), especially in the early replication sites. Thus, while systematic and quantitative measures of change were not emphasized, careful monitoring of what actually happened in schools and clusters was carried out as was quite frequent feedback to the project developers.

A major evaluation was implemented in 1984 by Balitbang, as planned from the beginning of the project (Balitbang 1985). Other reviews have been done by members of the project team and during visits of the University of London/British Council consultants, most notably during a lengthy consultancy at the end of 1986 (Gardner 1987).

E. Outcomes of the Project

Both the formal and informed assessments of CBSA have revealed a number of different results.

Achievement gains. While achievement tests were not explicitly developed to measure and compare change in the original Cianjur site, comparisons between more or less comparable groups in the first evaluation showed that the CBSA schools did better than non-CBSA schools in results on the national grade six examinations. By contrast, more systematic research in NTB in 1986, using before and after measures in control and treatment schools, on intelligence, aptitude, and achievement in science and social science, showed no large difference between schools --in fact, somewhat better results in the control schools. The interpretation was that the latter had been trained in more traditional and tried ways, while the CBSA schools had teachers as yet poorly trained in the innovation, pupils not yet used to the new processes, and parents still not clear of the idea and thus not really supportive of it (Gardner 1987) -- the implication being that results would likely get better over time.

Delivery of needed inputs. Given that inputs from the central government were limited, in contrast to PPSP and PAMONG, problems with this were not terribly important. The manuals and cassettes eventually developed, especially for the less-supervised areas of dissemination of the innovation, were considered rather unreadable in many instances and not generally understood (Gardner 1987:14). More difficult was the lack of input from what was meant to be a national steering committee, which seldom met, and from local SPGs and IKIPs. The participation of neither lived up to the expectations of the project developers.

Scope. The project's scope has exceeded the developers' expectations and desires. Since the mid-1980's, when preliminary results were positive, when the government was perhaps looking for an innovation to take the place of the then recently disbanded PPSP and the disappointing and underfinanced PAMONG, when the apparent decline in the quality of education began to steal the limelight from its recent expansion, and when decentralization began to become an important political issue, the government decided to implement the project as a national one. The project has since grown apace until it is now quite impossible to know how many schools have actually adopted the innovation. There are probably hundreds of schools practicing the innovation in the replication sites and thousands of others, uncounted, in areas of dissemination or in other areas without any support or recognition.

Use of the innovation's components. The reviews done in 1984 showed that under quite controlled conditions the innovation's major elements could be successfully implemented: pupils were more active, cooperative, and creative (sometimes noisy and seemingly less disciplined); and had greater skill in communication, discussion, and

problem analysis. Teachers, too, were more organized, used their time more efficiently, took greater account of individual pupil differences, derived more of their teaching material from the pupils' environment and experience, provided more feedback, and worked more cooperatively and democratically with their peers and their headmasters and supervisors (Tangyong et al 1986, Balitbang 1985).

But problems were also clear. Elements of active learning, such as group work and displays of children's work, were often carried out without teachers really understanding why these activities were being done. The appearance of change was achieved but not its internalization. Observation showed that many teachers had only moved from the formal pedagogy of the pre-CBSA phase to the equally formal format of the worksheet. Groups, too, were often static, with the faster ones waiting while slower ones caught up and students spending much of their time collecting information rather than forming conclusions or postulating solutions to problems.

Costs. Compared to the other innovations, cost was not a major inhibiting factor. ODA assisted with the building of a few teacher centres, consultant costs, and training, and the government covered other local training costs and the time and costs of the Balitbang staff for training, monitoring, and mobilizing local organizing committees. But the major share of costs were borne by local education offices, for local training, and by teachers, parents, or the local parent-teacher association for the cost of duplicating the worksheets and for other needed equipment and materials.

Changes with implementing institutions. Certainly in the best of the implementation sites, the nature of schools, of schools clusters, and of local offices changed dramatically. Individuals at all levels of the local system -- teachers, headmasters, and supervisors -- began to work with each other and with members of the other groups in more open, frank ways. Supervisors began to be asked into classes by teachers to observe their work -- an unusual activity given the nature of Indonesian culture. More generally, there began to be known a CBSA "style" of training, which other parts of the ministry began to adopt which was based more on small-group work, the democratic grouping of participants, and the realities of everyday school life.

F. Reasons for the Outcomes

As with PPSP and PAMONG, the outcomes of the CBSA innovation -- in terms both of the nature of the model development and of its fate when ready for introduction into the wider system -- can be related to a number of different factors. With CBSA, however, much of the assessment of this process must be held in abeyance since the innovation, as model and as system -- though having spread more quickly, more widely than PPSP or PAMONG -- is still under development.

1. Characteristics of the context of reform

In many ways the context in which CBSA is developing is both more complex and more open than that of a decade earlier when PPSP and CBSA were being developed. Though the power of the current government, both in political and bureaucratic terms, has been consolidated and the threat of internal dissent, both ideological and ethnic, has decreased, the development process itself is no longer seen as being quite so simple or as linear as it once was -- especially when oil profits made "progress" so visible. Many of the large, national programs developed in the rich years of the 1970's foundered on the inability of the government to adapt them to local contacts, to control their quality from the top, and to sustain them when oil profits disappeared.

There is therefore now a greater willingness both to recognize social, cultural, and economic differences across Indonesia which require flexible responses and to deregulate and devolve the planning and operation of development programs to lower levels of the bureaucracy (and even to partnerships with non-government organizations). Such willingness to encourage local initiative and a more "bottom-up" approach is a well-earned luxury for a government, like Indonesia's, which has largely won the battle against regional separatism which a strong centralized bureaucracy was meant to combat. It is a necessity for those governments, also like Indonesia's, no longer able to launch large-scale, top-down programs. Such an approach fits well with CBSA's overall spirit and particular components.

At the school level another factor in the context of reform has become important. The majority of teachers now in the system were trained and hired in the years following the political polarization of the 1970's; many of these are now headmasters and supervisors. While religious and political differences persist in parts of Indonesia, the government's success in de-politicizing the educational bureaucracy (with teachers all belonging to one party and one "union") -- as with the rest of the bureaucracy -- has meant that there are now fewer impediments to a more open, more collaborative attitude among teachers and across local district sub-systems.

2. Characteristics of organizations

The nature of the organizations involved in developing and implementing CBSA has also influenced its outcomes. One clear difference, perhaps reflective of the increasing uncertainty about how to bring about sustainable development, is somewhat greater willingness on the part of Ministry units to work together and a greater recognition that such collaboration need not necessarily result in less power or status to any one unit. Such a phenomenon may derive from the relatively stable leadership now in the Ministry -- the Minister was re-appointed for a new term, the chairman and secretary of Balitbang have been in office since 1983 and 1984 respectively, and some continuity is evident

in the upper echelons of the relevant line directorates. The director of one of the most relevant directorates, for example, was head of two of the provincial education offices where CBSA first flourished. It may also relate to the Ministry's relative poverty; when resources are limited, collaboration can suddenly appear more attractive and potential collaborators are less busy with a myriad of other activities.

Important also is the fact that Balitbang, with fewer staff and fewer resources behind it, is now less of a threat and less of a target, with a lower profile, than it was a decade ago. This has meant, ironically, that it has been able to develop CBSA with less resistance from other units. Its gradual movement into project implementation in the replication sites of CBSA -- something it was able to do only by proxy (via UNS) in PAMONG -- has become legitimated largely because it has made the move with discretion and tact. The Balitbang team involved with CBSA, assisted by the ever cautious British advisors, has therefore shown the ability to implement the project, even though now it is seriously understaffed and underfinanced for its expanding role in CBSA dissemination.

It has had considerably less success, however, in gaining the active support of other organizations involved in CBSA, at least for the kind of replication it wishes to promote. Only recently have attempts been made to collaborate with the textbook development unit of the Ministry, now developing textbooks for the so-called "perfected" 1975 curriculum (which is still considered by many to be too complex for the CBSA approach). There is little collaboration with the unit responsible for examinations and, again until a recent change in personnel, with the Directorate of Teacher Training and its large World Bank-financed project for developing SPGs. Collaboration with the personnel of the provincial education offices has been heavily dependent on personal relationships at the local level, and persistent attempts to get IKIPs interested in primary education methodology and reform have proven largely fruitless.

3. Characteristics of the actors

At one level of analysis, the real actors of Indonesia's education system -- low-level officials and teachers -- were never so ready for reform as in the early 1980's. Though promised much by the rhetoric of PPSP and PAMONG, most of them never saw the results of these reforms or understood their gradual disappearance from the public eye. They were instead steadily and increasingly burdened by more syllabus subjects, more detailed curricula, more numerous instructional objectives, and greater bureaucratic and parental pressure for good results. Confusion over the 1975 curriculum, which now is finally being implemented in primary schools in a revised form, and over the Minister's push for "local content", led to considerable malaise regarding what they should be doing and how. There was thus considerable readiness for a reform which was, in fact, "new" but promised no radical change in structure or curriculum and which appeared to be a reinforcement of, if

not a return to, the "old" virtues of "traditional" teaching. Active" learning, after all, had long been talked about in SPGs. In addition, there was a growing number of well-trained provincial and district-level officials in the Ministry offices who were eager to do something about the quality of education -- both from intrinsic motivation and as a means of gaining some visibility and thus some advancement within the bureaucracy. These two factors meant considerable readiness at lower levels of the system to implement the CBSA project.

At another level of analysis, however, these actors are really not ready for the reforms which CBSA has made necessary. It has become more and more apparent to the project developers that teachers are in general unable to "convert the curriculum into viable lessons with the CBSA mode" (Gardner 1986:9) -- unable, in other words, to go beyond the basic skills of lesson planning learned in SPGs to the more complex design of instructional units using a variety of teaching methods to achieve a variety of objectives aimed at children at different levels of ability. As a result, many teachers welcome the standardization and uniformity which worksheets -- especially those developed across a cluster of schools in teacher clubs -- can represent. Targets can be achieved, syllabus schedules can be adhered to, and a teacher's workload can be reduced by utilizing standard and common worksheets.

One piece of evidence relating to the above is the fact that of a number of teachers interviewed about CBSA, from both replication and dissemination sites, many reported that the innovation made their work considerably easier because they could use worksheets developed by a group of teachers, apply these to particular parts of the syllabus (and be certain that other teachers elsewhere in the cluster were doing the same), and thereby meet the curricular targets for the year.

At the level of implementation, characteristics of other actors in the process become important. As with PPSP and PAMONG, those less involved in the innovation from elsewhere in the Ministry began to snipe at it, calling it nothing new, merely local upgrading, a lot of fuss over nothing. There was clearly envy over CBSA's visibility and an attempt to prove that they had been "doing" it all along. If, as with PPSP and PAMONG, CBSA begins to falter, such criticism can rapidly multiply.

4. Characteristics of the innovation

Complexity. In many ways, CBSA is -- and is seen as being -- relatively simple to comprehend and implement. It lays out a simple structure and process for professional support, recommends the attainment of active- and open-learning goals which teachers have long been exposed to, and suggests -- in a stepwise fashion -- quite visible ways for teachers to show that they have adopted the innovation and to feel its success: group work, displayed student work, desks in a circle, etc. Unfortunately, such simplicity masks the difficulty teachers have of genuinely internalizing the flexible, open, and experiential nature of

CBSA and the outward looking, frank, almost democratic support system which is needed to nourish it. The apparent simplicity of CBSA, in other words, largely accounts for its current popularity and its ability to produce cosmetic changes in classroom processes; its real complexity, however, may ultimately lead to its failure to improve genuinely the nature of Indonesian education.

Cost. A large factor in CBSA's success to date is its cost. Using ODA and British Council support and Balitbang's budget for staff and travel, it has cost the Ministry very little in extra expenses. No new categories of civil servants have been hired; no new textbooks printed; no new buildings constructed with government funds. This is an ideal situation for an innovation in search of permanence.

What is worrisome, however, and as yet quite unknown, is the extent to which costs are transferred to the local level -- to teachers, pupils, and parents. Children must bring material from their "environment" for many lessons; not all of these (magazine pictures, batteries) are "free". Worksheets, whether prepared by individual teachers or by teacher clubs, need to be duplicated at least for every pupil group and often for every pupil -- per subject, per day. While project developers now urge that these be copied onto and from the blackboard, teachers persist in believing this too "traditional" and even contrary to the innovation's spirit. Thus, they are typed, stenciled, or, in more urban areas, photocopied at the expense of teachers and/or their pupils.

The careful analysis of how CBSA works in areas where families cannot provide its monthly costs, where children can't afford paper and pencils let alone magazines and felt-tip pens, is only now in the process of being made. Until CBSA can be shown to work in such environments, its final results must remain in doubt.

Technical validity, practical feasibility, and scientific credibility. The CBSA system reflects a general and growing interest in regard to the decentralization of curriculum development and decision-making to lower levels of an education system in order to promote more informed decisions, more relevant curricula, more efficient use of resources, and greater participation of parents and motivation of teachers (Bray 1987). It also reflects the clear conclusion of many educators that it is not the amount of in-service training that matters, but rather the nature of it.

CBSA, like PPSP and PAMONG before it, appears technically valid in that it does provide such learning; teachers are "supported" continuously and frequently, by a variety of resources (including their peers), and based on their everyday classroom experiences. It has also proven to be practically feasible, in a limited replication and with considerable supervision.

In Cianjur, NTB, and elsewhere, clusters have been formed, professional support is being provided, and classroom methods are more diverse, more group-based and more "active" than in the past. Results, such as are available, are also promising. What is still very uncertain, however, is the extent to which such improvements and such results are feasible on a larger scale, over the larger-term, and, necessarily, with less assistance and quality control.

5. Characteristics of the innovation process

Organization and management of process. Though plagued at the beginning by some uncertainty and indecisiveness, as leaders and priorities changed in Balitbang, by 1981 or so extensive planning had occurred in regards to the financial resources and training needed for the CBSA pilot phase and to the responsibilities various institutions at various levels had to make it work.

Much of the project's early success in Cianjur must be credited to such forward planning -- this despite the fact that many of the suggestions made in early planning documents were not implemented. Sub-district subject specialists were never hired (a financial burden which the Ministry could not contemplate), extensive training was slow to get organized, and there were really too many schools and teachers involved in Cianjur to ensure careful monitoring. On the whole, however, the step-by-step planning undertaken for CBSA has enabled it to move quickly to relatively complete development.

Style of management. More than anything, perhaps, the success, and the risk, of CBSA lies in its management style. "Ownership" of the innovation and control over its development lie very much at the local level, and these fit perfectly with both the government's move to devolution and with local desires (of both bureaucrats and community leaders) for greater autonomy. There is a real sense of Balitbang giving free rein to the regions where CBSA is being replicated -- regions which have in turn responded with a host of alternative approaches to the content, nature, and schedule of teacher clusters -- and now not being aware of where each region has gone (and giving up entirely on what directions have been taken in regions of rapid dissemination).

Such changeability is a danger. It is becoming increasingly less clear what the core or the essence of CBSA is, as it moves from site to site and district to district, often with little supervision, and as its central message of diversity and adaptability to individual environments and individual pupils is distorted into less and less flexible, more and more uniform approaches. While the style of management, therefore, has proven serendipitous for development of the pilot phase of the project, it could lead to only shallow implementation of CBSA's principles in wider dissemination.

Philosophy of change. Of all the innovations considered, CBSA is by far the one most derived from a cultural, interactionist, as opposed to a technological, philosophy of change. Interaction within the classroom (as in PAMONG) has been matched by considerable interaction across Ministry units and even more up and down the system. Most telling has been interaction between the core of the innovation itself and the particular social and cultural (if not yet economic) characteristics of the regions in which it has been replicated.

The risk, however, is that if this philosophy is not genuinely understood by those implementing and disseminating the project -- if the need for protecting the core while permitting adaptability of other components does not continue to be recognized -- then CBSA may end up becoming a piece of ritual and rhetoric like so many other innovations of the past. Already there are signs of this, with projects elsewhere in the Ministry labelled "CBSA" and with local officials wishing to label their schools as CBSA schools after only a minimum of exposure to the reform.

In order to prevent this possibility from arising, the CBSA team at Balitbang, with ODA assistance and with British advisors, are working hard to underline the core elements of the innovations through further teacher manuals as well as a pamphlet for decision-makers and officials which defines what CBSA is and how it can be implemented. Further training of teachers, trainers, and material developers is being carried out in London and in Indonesia, and attempts to develop a number of regional centres for "better practice" in primary education are continuing. Such centres might serve as places for research into primary education methodology, technical assistance to districts and schools implementing CBSA, and training sites for the cadres of Indonesian trainers, supervisors, and officials who will be needed to ensure that this innovation, unlike others in the last twenty years, moves fully and completely into the mainstream of the nation's education system and therefore makes a real difference in how the children of Indonesia are educated.

VI. COMPARISONS AMONG THE INNOVATIONS

Over the last two decades of Indonesia's educational development, a number of changes have occurred in regard to the nature of innovations attempted and the strategies adopted to put them in place. Whether these changes were due to chance or were deliberate, the extent to which they responded to changes in the development context, and thus whether they represent "progress" or merely random variation in the process of educational change are not easy issues to address. It appears clear, however, that considerable "learning" has taken place among Indonesian educators and administrators about the ways in which innovations can more usefully be developed, tried out, and disseminated. Whether such increased awareness about how educational change can most likely succeed can resist pressures from outside of the system for quick and "national" solutions to education problems remains yet to be seen. The lessons learned over the past 20 years of educational change are analyzed below.

A. The Nature and Content of the Innovation

The three major innovations of the last two decades --PPSP, PAMONG, and CBSA -- have one thing in common: they have been based on conceptually sound and valid educational theory. Taken separately and in themselves, the concepts of modular and individualized instruction, mastery learning, academic streaming, student-centred active learning, etc. -- though still the subject of serious professional debate -- are generally recognized as valid pedagogical methods. The three projects, in other words, were not inventing a new wheel (while perhaps adding or re-shaping a spoke or two in an old one), nor were they outside the mainstream of then current educational theory and practice. In ideal worlds, they should probably have worked.

Besides this, however, the three projects, taken in order (PPSP, PAMONG, CBSA), show considerable variation over time in a number of aspects related to their nature and to their particular content. First, the projects tended to be increasingly less concerned with fundamental structural change. They were less radical and challenged less aggressively the established structure of the school system and the educational bureaucracy. PPSP tried to challenge both, calling for a 5-year primary cycle and the possibility of a shorter secondary cycle, a "one-roof" school, a revolution in text materials (the modules), and explicit IKIP involvement in running experimental schools at levels ordinarily managed by a line directorate. PAMONG did none of these; its attempts at structural change were limited to its particular versions of modules, to peer mediation, and to somewhat wistful reflections on a completely "open" system where students could move in and out of formal, non-formal, and informal alternatives. CBSA, except for its call for a more open system of supervision, challenges few, if any, of the structural or bureaucratic norms of the system.

Second, innovations in Indonesia have also tended to become more realistic in scope, cost, and schedule; much was learned, in other words, from earlier experience. If the very first version of PPSP foresaw experimentation one year and dissemination the next, the second version imagined the need for rather systematic research and development and eventual dissemination from the IKIPs out -- but still as a "master design" for the national system. PAMONG, after flirting briefly with the idea of national dissemination, settled for replication to those areas most in need, following the careful testing of a model in the somewhat more "realistic" surroundings of Gianyar, Bali. Neither of these, however, paid much attention at the beginning to the cost of project development, let alone dissemination, and both assumed that five years or so of development would be followed quite easily by national replication -- no matter what changes might occur in the staffing or priorities of the Ministry. CBSA, on the other hand, began with the assumption that it had to be developed slowly, from the bottom up; replicated even more slowly (some talk of a generation until full dissemination, a heretical concept in most government-approved reforms); and done so at very little cost to the Indonesian government.

Thirdly, these innovations also have tended to become less conceptually complex, with fewer components and a more comprehensible (to the layman) framework. PPSP spoke explicitly of mastery leaning, continuous progress, and a self-instructional modular system, along with other components which these concepts implied. PAMONG, while based on some of the same ideas (almost after the fact), couched its reforms in simpler terms and concepts. CBSA has done this even more so, returning to the long-familiar terms of active learning (albeit with a slightly different definition and very different implications for practice), to the "regular" curriculum, and to a more traditional repertoire of desirable teaching methods. Such simplicity has both advantages and disadvantages; it makes it possible to attract support from both teachers and laymen, but it also makes these supporters believe that the changes required are modest (rather than essential) ones.

Fourthly, the more recent the innovation, the more it has been based in schools. PPSP was very much top-down in nature, planned in the bureaucracy and administered by IKIPs within experimental schools but based little on the conditions and facilities of average schools (let alone the thousands of below-average ones) or on the bureaucratic context in which these schools existed. PAMONG staff were more cognizant of school-based needs, made some effort to select schools for experimentation and model-testing which were representative of a large population, and recognized as well (though not always with success) the need to develop these schools in relation to local education offices and local communities. CBSA has followed this bottom-up approach, very much seeking a variety of school settings for its try-outs and attempting to move the experimentation at each site very quickly into the routine administration.

Fifthly, the more recent the innovation, the more it has also been focussed on teachers. PPSP, especially at its beginning, basically dismissed teachers as unable to develop the learning situations required to educate children for the challenges of national development. The "technology" of a modular system took their place. As PPSP developed, the role of teachers became somewhat more central; they were needed to use the learning packages and develop multi-method lessons which the modules alone had been unable to do. Such an expanded role for teachers was very much at the core of PAMONG, in part because of what was, at the beginning of PAMONG, an absolute shortage of teachers; they were seen as more active managers of learning resources (modules, aides, tutors) and organizers of learning situations, although they still required detailed recipes for their work. This became especially true in small schools and, toward the end, in the use of condensed modules used with regular textbooks. There was a greater balance, in other words, between teachers and technology. CBSA, by contrast, has swung very much against new technologies, emphasizing instead a certain faith in teachers as autonomous managers of a self-contained classroom, needing support and training but able to find much of this from their peers. They are seen as able to identify their own needs, design their own training, experiment with their own solutions, and help each other through the entire process. Whether this is true or not remains a critical question.

Each project in turn has also shown greater cognizance of the importance of cultural and contextual variety. PPSP, though permitting some local options among IKIPs and their schools, maintained a strong sense of uniformity, especially in regard to the core of the innovation: modules, mastery learning, continuous progress. Cultural variation entered not at all into its debates, and contextual variation depended largely on the strength and interest of the local IKIPs. Those stronger and more interested were permitted somewhat greater leeway; weaker ones were allowed less. PAMONG very early on recognized the need for try-outs in different cultural settings -- in fact, even invited an anthropologist to describe if and how the system might fit into Balinese society (Singleton 1978). And it eventually -- and almost desperately -- adapted its system to every conceivable contextual need and bureaucratic whim. CBSA has extended this flexibility even further, with careful but quite different replications of the original model in several different geographic, cultural, and socio-economic settings. A great deal of local autonomy is given to each district in regard to such things as the structure and frequency of teacher club meetings. Even greater variation (perhaps too much) exists in those areas where more spontaneous dissemination of CBSA is occurring.

Lastly, while in PPSP the major focus of concern was the nature and structure of pedagogy -- what is taught, what is the best way to teach it, and at what levels -- in PAMONG and even more so in CBSA, the focus has been on behaviours more related to sociology -- how people work together to achieve a goal (i.e., teaching and learning). More and more there has been interest in interaction, in addition to traditional

interest in cognition, affect, and psychomotor skills. This can be seen in how each project has interpreted "active" learning (the fact that they all claimed to be doing it is a major problem with the CBSA project). In the PPSP pupils were meant to be active thinkers, module-readers, and organizers of self-study. In PAMONG more weight was put on interaction within a group, in various learning situations and in teaching from modules. In CBSA interaction is an active and collaborative seeking and sharing of information among pupils and between teachers and pupils.

B. The Innovation Strategy

The three innovations described above also show quite different and evolving strategies in terms of how they were planned, developed, implemented, and evaluated.

First, the innovations became increasingly more interactive in style, not only in terms of the nature of the innovation itself as described above, but also in terms of their relationships with other elements of the bureaucracy and other actors in the system. PPSP was not particularly interactive in this regard. Though at the highest levels it maintained passable relations with the directorates general eventually involved in PPSP dissemination, these were very formal in nature. Quite poor collaboration existed with representatives of these units at the local level. Very little interaction characterized PPSP at the school level either. Teachers were involved largely in commenting on the quality of individual modules and not heavily involved in program design or evaluation. PAMONG was more interactive. Though results varied by site, quite good relations were maintained with local education offices in Bali and Kalimantan and at some levels in Central Java, and eventually the Solo implementors went over Balitbang's head to initiate contacts with units in the central Ministry. Teachers, as well, were heavily involved in feeding back opinions regarding modules and teaching-learning strategies to program planners.

In CBSA such interaction has gone the furthest, not with the SPGs, the local teaching training institutions (but they have never been involved in any of the innovations discussed), but among teachers, headmasters, and local offices of the Ministry. In some sites, in fact, they virtually run the program. Relations among directorates in Jakarta are less intensive, however, and this has led to disagreement concerning the pace, scope, and control of further dissemination.

Secondly, if we return to the discussion of implementation strategies in chapter I, it should be clear that the strategies of these innovations have become increasingly less "technocratic" and more "cultural" in their style of analysis, planning, and implementation. PPSP was quintessentially technocratic, designed of a master plan for Indonesian education and clearly based on generally accepted concepts of pedagogy, a systematic experimental process, and a well-structured

management system. PAMONG was somewhat more "seat-of-the-pants", no doubt reflecting the management style of the Innovation Centre of Balitbang as well as the fact that many of the original INNOTECH principles needed to be replaced with more Indonesian-specific elements. Thus, very early in its development -- no doubt responding more politically than PPSP did to bureaucratic conservatism -- it recognized that it could not become a truly national reform. Though relatively well organized in terms of management and of experimental design, these were less formal, less high-profile, and more adaptable than those planned by the technocrats in PPSP.

To the extent that a "cultural" strategy is one which is flexible and adaptable, responding to the needs of particular contexts and various actors in the system, CBSA is clearly most cultural in its approach. The CBSA team at Balitbang assesses the variant needs and contexts of each replication site, adapts the innovation's components to these variables, negotiates with local officials and implementors concerning the best ways to carry out the project, and to some extent allows them to get on with its development. The question arises, of course, as to when such a grass-roots, bottom-up approach risks losing sight of the innovation's core.

This relates, thirdly, to the fact that changes occurred over time, across the innovations, in regard to the locus of control and ownership. In PPSP these were clearly in the hands of the centre, not the periphery. The PPSP team in Balitbang was in charge of the project, "owned" it, and to some extent manipulated the national coordination meetings to ensure that such control was maintained. Working meetings among PPSP heads to discuss common problems and operations were not encouraged. IKIPs had some creative power to adapt the innovation's various elements, but even this was limited. In PAMONG the picture is much less clear. Certainly the Innovation Centre had final say over funding, sanctioning, and controlling developments in each of the project sites, but because of the increasing strength of the site teams and the decreasing attention which the Innovation Centre could give to the project, a great deal of authority and ownership eventually resided in the Solo team. As it became involved in several different variants of the reform and turned its attention to "marketing" the idea, it, too, devolved considerable autonomy and authority to each of the other project sites.

Again, this phenomenon is even more evident with CBSA. Only with difficulty has the Balitbang team been able to retain some modicum of authority over the replication sites and little influence within the dissemination sites. Many new practices are being created and managed at these sites, some of which are quite different from the concepts and intentions of the Jakarta team. In addition, the ownership of the project is considered to reside in local school districts, school clusters, and individual schools -- a much more democratic condition than in the other two projects.

Another important difference among the projects is the approach they took to a strategy of research and development; in general, this approach became more realistic and valid as time went on. As we have seen, the first version of PPSP was expected to be almost instantly developed: preparation one year and dissemination the next. The second version became increasingly reasonable, with plans to develop the innovation in eight schools, disseminate the developed method into "pre-dissemination" sites near to the original schools, and then spread it more widely throughout the system to schools prepared for the innovation's various components through other, more general and simultaneous reforms. This design was eminently valid from a scientific point of view but not particularly realistic in the Indonesian context.

PAMONG had an equally valid and even more feasible R&D strategy. The innovation was developed under close supervision in a few schools, and the prototype developed was then tried out more widely in another province with much less input from the central experimental team. There was still considerable input from local project staff, however, and from foreign consultants and donor agency advisers. Even quite late in the development process, therefore, the method was not really being examined in a non-experimental, thoroughly "routine" site.

CBSA, on the other had, has gone very quickly into the "real world" of Indonesian schools. It has moved more rapidly into more schools in the original site, some with relatively little supervision or evaluation, and eventually into more provinces and school districts. It therefore very quickly learned what problems the innovation would face in the larger population of Indonesian schools. The question remains as to whether the research it is undertaking in this situation will be able to influence the widespread dissemination now taking place.

This relates to yet another change in innovation strategies that has occurred since the early 1970's. There is much greater awareness now of the differences among "project", "model", and "system" and of the difficulties of moving from one to another. PPSP staff, inspired by the technocratic model of change, seemed to believe that their project would produce a model, with little difficulty, which could then quite quickly and easily become a national system of education. The gap, in other words, from experiment to system was seen as being neither wide nor difficult to leap. In fact, they never really went beyond the development of a project prototype in eight schools and, even after over a decade of work, never got to the stage of having a replicable (let alone widely disseminatable) model. Problems of uneven and incomplete replication uncovered by the comprehensive evaluation were de-emphasized in any published results and so were of little use in helping to develop a more appropriate "model".

PAMONG staff understood the process and the difficulties better. Thus, quite early on, they saw the need for two stages of work -- of prototype development in Solo and model development in Bali -- before getting to the final stage of dissemination. The same was true of the small school variant of the model in Kalimantan and elsewhere. They also foresaw some of the likely difficulties lying in the path of successful innovation, but assumed (wrongly) that these could be overcome by a

prototype development in Solo and model development in Bali -- before getting to the final stage of dissemination. The same was true of the small school variant of the model in Kalimantan and elsewhere. They also foresaw some of the likely difficulties lying in the path of successful innovation, but assumed (wrongly) that these could be overcome by a combination of clearly good results and good politics, neither of which eventually came to pass. As a consequence, PAMONG was, in fact, able to move beyond the prototype stage to develop a model which was more or less pedagogically sound and, at least in the small schools, feasible as a system.

The CBSA team recognizes better than anyone the real differences among, and difficulties in moving between, stages in the educational change process. It was the first team that clearly differentiated among the development of a prototype, the replication of a model, and the dissemination of this model into a system. And it has recognized only too well the problems of moving from one to the other -- both the problems of not moving at all, because of bureaucratic conservatism and individual inertia, and of moving too fast, before the innovation's recipe is perfected and the dish finally cooked. Thus, CBSA, unlike the others, has succeeded in developing a prototype and a model which in some, heavily supervised, contexts seems to be working. Whether the model will ever successfully dominate the system in which it is now being rapidly disseminated is still in doubt.

A final evolution of the strategy of educational change has occurred in the role played by research and evaluation. Here we will differentiate among four different processes: feedback, the providing of opinions from teachers and other practitioners to planners in regard to the suitability of materials and methods; monitoring, the intensive and longitudinal observation of the extent to which the innovation's components are being correctly implemented; testing, the measurement of (usually) pupil outcomes, both cognitive and affective; and basic research, the study of underlying processes and concepts which may or may not be supportive of the innovation's goals.

The most common type of research done within all three projects is feedback. PAMONG staff, for example, regularly visited schools and held meetings with teachers to discuss the strengths and weaknesses of individual modules and the usefulness of particular methods. PPSP and CBSA have done the same, in a praiseworthy attempt to ensure that the materials produced were readable and the methods recommended, feasible. (Given the professional weakness and extensive activities of many IKIP-based module writers in both PPSP and PAMONG, however -- as well as the cost of re-printing revised modules -- many of the suggested revisions were apparently not put into place).

Testing of pupils is another common kind of research in these projects. But because there was such a strong belief that the soundness of PPSP and PAMONG would be evident to outside observers and that Balitbang would guarantee the projects' success, there was little attempt in either of these projects to collect achievement data systematically or continuously in the development process. In PPSP, for example, testing was done primarily only after pupils had completed a full system of 3-5

years of instruction. It was therefore not until both projects appeared to be in some danger of not being disseminated that systematic testing of pupil achievement, and eventually affective outcomes, was undertaken. By then, the information obtained was generally inconclusive and too late.

The CBSA staff have moved more quickly to test pupils, and results have shown some success in this regard. But they know only too well that significant differences in achievement, whether as compared to control groups (increasingly difficult to find in CBSA areas) or as before-after scores, are difficult to demonstrate so early in the development process, and they know as well the pitfalls of such testing, whether by special test or by using local school-leaving examinations.

Much less common, at least during the early development phase of PPSP and PAMONG, was systematic monitoring. Too late it was learned in PAMONG that teacher reports of classroom activities were not necessarily accurate or complete. Case studies of the daily implementation of the innovation in classrooms by trained observers found serious problems with what had been accepted as routine and critical parts of the PAMONG system -- again, almost too late to change. While considerably more monitoring was done in PPSP, especially by the national evaluation team, results were used largely for revising modules rather than for either improving the general PPSP system or "marketing" the system's virtues. Thus, the only available evidence of how PPSP "looked" was incidental and anecdotal and often not sympathetic to the project.

The CBSA team undertook much more observation of classroom and school processes, especially in the early replication sites. It therefore knew what the thing looked like, was able to anticipate some of the major problems of larger-scale dissemination, and could gather evidence to combat (if necessary) the less scientific, more impressionistic opinions of its critics. More research is now being done to determine what aspects of these processes have survived both in the earlier, heavily supervised sites and in the later replication sites.

None of the teams, however, felt it necessary, at least until late in the process, to undertake basic research into the processes and concepts which, in theory, underlay their innovations. Research could have been done, for example, into the possible conflict between individualized learning and the local culture's emphasis on mutual help, into the dynamics and results of peer tutoring, into the conditions required for Indonesia's primary teaching force to take greater control over their own training. Such research might have helped prevent both some of the problems that occurred in the course of the development of the innovations and some of the misconceptions about the reforms which led at least in part to their various fates.

VII. CONTINUING PROBLEMS OF EDUCATIONAL CHANGE

The content and methods of the three innovations discussed in earlier chapters are characterized by many differences. Facing all of them, however, has been a number of factors endemic to the Indonesian educational system and to its bureaucracy which have made the implementation of innovations difficult. These problems are not new in the world of educational change; they strangle and kill the process of reform all over the world, both developing and developed. But they are particularly frustrating in a place such as Indonesia where dedicated and creative innovators work; where, at least during some of the period in question, money was available to support substantive reform; and where the need for innovation was great.

A. The Climate and the Culture of the Bureaucracy

The first set of factors relates to the nature of the Indonesian bureaucracy, particularly in education. The problems are both structural and cultural. Compared to many countries, the tenure of an Indonesian Minister of Education is long; most remain for a term of five years -- the length of the New Order cabinets named since 1967. Though there were six ministers who governed within the period in question (1970-1990), two of these died in office after quite short terms; the other four had full or near-full terms. Any genuine reform, however, will likely take at least a decade to plan, implement, test, and disseminate. A Minister's term, at only a half-life of an innovation (and effectively less) is not long enough for the complete implementation of a reform. Its fate can therefore be placed in jeopardy with the appointment of a new Minister, especially if its goals are not clear and its results, not evident.

Such stability also empowers a Minister to institute reforms bearing his own name. In many countries ministers (and particularly Ministers of Education) are political appointees, often in power only until moved to accommodate the latest subtle shifts among political allies. They realize from the beginning of their short term that their task is not to reform the system; that is left to the professional, career bureaucrats -- the directors-general, the heads of R & D Centres and Examinations Councils, etc. In Indonesia, on the other hand, a new Minister, emboldened by what is likely to be a lengthy tenure, is expected and encouraged to bring in a new team of senior bureaucrats, new ideas, and, eventually, new reforms. There is enough time, in other words, to establish a reputation for having done something substantial. Favourite ideas and special projects become important; a good example was a new subject in the history of Indonesia's "national struggle" introduced by a Minister in the early 1980's -- whose field was history -- which duplicated much of what was already taught in two other courses.

The changing of the guard which follows a new Minister, however, is a gradual process. Perhaps because of cultural imperatives which attempt to prevent "loss of face", the new team does not appear overnight. Directors-general are replaced slowly, and they, in turn, replace their directors slowly. By the time a new team is in place, in other words, half of the Minister's term is over and any serious attempt at reform has only just begun.

Such conditions affected the innovations discussed above. While the head of Balitbang had a long tenure, through most of two long ministerial terms, his power to act was limited towards the end of his stay, just at a time when important decisions were to be made about both PPSP and PAMONG. His staff were also shuffled around when he was replaced, removing from power the heads of the critically important centres for Innovation and for Curriculum Development. Their personal commitment to the innovations were not necessarily shared by their successors. In such a context, the lack of "hard" data in regard to the results and cost-effectiveness of PPSP and PAMONG was fatal. Likewise, directors and directors-general in the line departments were also replaced -- as were the frequently important heads of provincial and district education departments -- and whatever collaboration might have been established among such departments was put at serious risk.

This is at least one reason why another structural problem of the bureaucracy looms large in the fate of Indonesian innovations: the lack of collaboration and complementarity across the educational bureaucracy. Pre-service and in-service teacher training are controlled by different parts of the Ministry; the production of textbooks and other materials and the development of examinations in yet other parts of the system; and the research and development centre is quite completely separated from the line units. Thus, while one branch of the Ministry is giving primary importance to the achievement of curricular targets so that achievement scores in the standardized examinations increase, another is urging (as in CBSA) that the achievement of the too-numerous targets is less important than the development of useful attitudes and skills through student-active learning. Though Balitbang increasingly sought to work with the Directorate of Primary Education and local education officials in the innovations it developed -- largely in order to win over their support for eventual adoption and dissemination -- once such dissemination began, often on only a limited scale, Balitbang and the innovation's developers (such as UNS) were frozen out of the process, able only to watch as the quality and consistency of the innovation declined.

Such lack of collaboration occurred also within Balitbang. The Curriculum Development Centre's struggles with the design, preparation, printing, and testing of PPSP modules in the mid-1970's were virtually duplicated a short time later in the Innovation Centre's work with PAMONG modules. PPSP's discovery of the need for "multi-media" lessons, given pupil boredom with modules, was "re-discovered" by PAMONG, and PAMONG's group learning techniques re-discovered by CBSA.

There is a host of reasons for such lack of communication. Structurally, each innovation was a "project" in a bureaucracy where the project is the basic unit of funding, power, and status. Each was identified with a different donor (which also considers the project as its primary unit of activity and status), with different line items in Balitbang's budget, and with different parts of Balitbang. And no matter how powerful, it is not likely that any Balitbang leader would compel his staff to surrender the funding, power, status, and perks which come with a particular "project" for the sake of greater complementarity among related projects. Thus, a project becomes an end in itself, part of the reward system which encourages the shallow involvement of personnel in many rather than the intensive involvement in one, instead of becoming part of an overall, integrated effort to improve the quality of education.

Substantive issues of content, however, also led to a lack of collaboration. PAMONG staff quite genuinely believed that their modules were "better" than those of PPSP, and thus had little to learn from the former (and vice versa), and PPSP believed that their more sophisticated conceptualization of the innovation was "genuine" mastery learning rather than PAMONG's mere "programmed instruction". Likewise, CBSA developers saw PAMONG as generally a failed experiment from which little of use could be learned.

Also important were personal issues. As several of the major actors told me, the centres' heads and their colleagues in the early 70's were young, inexperienced, and ambitious, suddenly at centre-stage and in charge of major innovations with both national and international acclaim. They were understandably proud of their work, jealous of its identity, and wishing to "find a name" for it and for themselves.

Such personal issues relate closely to behaviours appropriate to Indonesian (especially Javanese) culture. It is difficult to ask colleagues for assistance, difficult to place oneself above one's peers by offering such aid, and difficult for superiors to deny to their inferiors the chance for personal promotion. All loyalty, all communication, all sense of support and obligation move along vertical rather than horizontal lines and thus very little encouragement exists for collaborating <u>across</u> the hierarchies in place.

A final aspect of culture is quite complex. For lack of time or training or perhaps because of the traditional value given to the spoken word, it has been frequently claimed (though never documented) that Indonesians "don't read". Though an exaggeration, there is considerable evidence that the lengthy conceptual frameworks, project designs, progress reports, and research results which arose from each of the innovations were neither taken seriously nor carefully read (if at all) by either those working on related activities or by decision-makers.

This had two results: one team learned little from the experience of others, and substantive, technical, and documented evidence of success or failure (admittedly not particularly systematic or convincing in presentation) was never absorbed by those who needed it most. What happened instead was the circulation of rumour and off-hand criticism, often simplified and distorted, that eventually took on a life of its own. Thus, it became easy to dismiss PPSP because of its expense and its elitism; PAMONG for its expense and complexity (too many modules); and CBSA because it was "nothing new". Such casual dismissal was perhaps partly justified, but it is also a sign of rivalry for scarce goods and implicit criticism for those who try to "raise themselves" above the crowd. The result was that no matter what evidence was eventually gathered -- related to academic success, to unit costs, or to teacher satisfaction -- it was seldom read and, if read, not believed.

B. The Life History of an Innovation

Another general, continuing problem of innovation in Indonesia relates to the natural life history of any innovative activity. We are referring here to two different aspects: the extent to which an innovation is (or can be) developed, and its public profile created, so as to "fit" with the political and bureaucratic climate in which it lives; and the extent to which it is allowed to evolve creatively and richly over time, rather than enter a process of "involution" which turns it routine, stagnant, and ultimately "un-innovative".

Both PPSP and PAMONG suffered because they were begun in one particular climate and ended in another; the profile or public persona they developed for themselves to serve the conditions of one context became inappropriate to the conditions in which they eventually needed to lived. PPSP and PAMONG began to be developed under a Minister sympathetic to reform but at a time when money was in short supply. Innovative attempts to improve the quality of education (PPSP) and to increase the quantity of pupils reachable by the school system (PAMONG) were welcomed by the Ministry. Though opinions differ among the major actors, it appears that the strategy chosen by the developers of these two projects was to maintain a relatively low profile for the innovations, both for fear that too close an identification with powerful supporters might -- given the institutional and individual rivalries discussed above -- make difficult its ultimate acceptance, and out of a wish to sell the idea on its merits. While there was considerable publicity regarding them in the media, through PPSP's national coordination meetings, and even in Presidential speeches and government planning papers, they were not strongly pushed as solutions for what ailed the Indonesian educational system and therefore as ideas which should be quickly and widely implemented. This was true even in the later part of the decade when funds became available for much larger development projects.

From a professional and development point of view, and based on a technocratic approach to change, this was an appropriate strategy. From the point of view of the innovations themselves, it was disastrous. By the time the developers felt ready for wider dissemination, by the time, in good conscience, that they believed the model was valid and feasible, conditions had radically changed. A new Minister, not familiar with any of the innovations and concerned with reform in other areas, was in power. The always supportive director of Balitbang was a lame duck. And funds which were available to the Ministry were being used for absolute quantitative expansion of the system rather than for what was seen as tinkering with delivery systems and complicated combinations of in-school and out-of-school activities -- reforms more needed at an earlier time of financial constraint and an inadequate teacher supply. The time had come for a high profile for the projects, with strong Ministerial support, government funding, and bureaucratic cooperation in widespread dissemination of the projects, but none of the conditions required for such a profile -- conditions which had existed earlier in the decade -- were in place.

A second important aspect about the natural life of an innovation relates to what happens during the movement from the phase of greatest richness and creativity (usually near the beginning of the project) to the phase of routinization and standardization. How quickly this movement occurs and the extent to which project development is forced to move at a given pace or is allowed to move naturally are critically important in determining the fate of the innovation.

As PPSP, PAMONG, and CBSA took shape, they were characterized by an incredible amount of excitement, creativeness, and experimentation. They were not, despite their intellectual antecedents, mere adaptations of innovations developed elsewhere. They were (and are) largely indigenous and pioneering. Ideas were thrown out, discussed, altered, and rejected; materials were developed and revised and methods tried out and refined. Research and evaluations of different kinds were carried out. Practicing teachers were involved in these activities, and alternative models were designed, tested, and championed at different development sites. The content or core of the innovation was all-important, and it was rich and varied. The further evolution of this into the best possible and most appropriate models or models was thought to be only a matter of time.

Such a process of evolution, however, was slowed and replaced by a process well-known in Indonesian studies, that of "involution". Introduced by the anthropologist Clifford Geertz in reference to Javanese agricultural practices (Geertz 1963), this process represents one in which -- for lack of land and additional resources -- rice cultivation is turned in upon itself, becoming more and more elaborate and refined in execution and in detail but using no new resources, opening up no new territory, and developing no new breakthroughs in method or result. This is the kind of process, I would argue, that has occurred in the last 20

years of educational innovation in Indonesia. As project developers became more and more concerned with the search for evidence of their project's success, as the need both to operationalize the innovation into discrete and comprehensible pieces and to elaborate its procedures and bureaucratic structure became greater and greater, and as the innovation became one centred on form instead of on substance, the creative energies of the project were turned inward toward developing ever more refined and "involuted" processes. The innovation, as a living thing, became frozen in space and time, and the focus of those concerned turned from further evolution and enrichment to involution and routinization.

This movement to standard, uniform, even quantifiable units of activity which can be replicated and then disseminated widely, especially in a far-flung, complex place such as Indonesia, is absolutely necessary and logical. The problem is that it was forced upon the innovations too quickly and too absolutely. Little time remained in the midst of such a process for the basic research which might have helped to enrich further the later development of the innovations. The push to develop the projects into a form which could be understood and then disseminated by the non-research-minded bureaucrats of the line agencies meant that what had been rich and somewhat open-ended in substance rapidly became routine and standardized. The number and detail of modules and management systems in PPSP and especially in PAMONG proliferated; guidelines for PAMONG implementation for virtually every actor in the PAMONG process (including village heads) became inches thick; and the varieties of module types being developed and tried out at any one time responded to bureaucratic rather than developmental needs. And in CBSA, especially in those areas of more spontaneous dissemination, the simple and open-ended guidelines for innovative lesson development have tended to degenerate into uniform and universal lesson plans and worksheets.

C. Disagreements Over Basic Definitions

Another set of factors which makes reform difficult in Indonesian education relates to fundamental differences of opinion over the definition of educational quality and over the actual competence and potential role of teachers. These differences are seldom explicit; they are rarely argued within the bureaucracy, in IKIPs, or in the popular press; they do not consciously form the basis of teacher training programs, curriculum development activities, or even of reforms. But they implicitly influence approaches to innovation and so complicate the process of educational change.

The first disagreement relates to the definition of educational quality. At the level of public rhetoric, the definition is usually limited to issues of school availability, examination scores, entry into higher education, and -- at a higher plane -- the creation of "Pancasila" man. Debate within the education establishment, especially in government, is focused more on the quantity and nature of facilities and, in academia, on the quality of texts, materials, and teachers.

Inputs into the education system have always been an important measure of educational quality in Indonesia. The building of schools, from the tens of thousands of primary schools built from oil surpluses during the 1970's to the creation of a university in each of Indonesia's 27 provinces, is an act with both political and economic implications. Politically, it shows that the government "cares" and "delivers", in remote areas as well as in cities; economically, it shows that the government can afford "good" education. Classrooms under trees and the use of locally-available building materials are seldom accepted; the basic six-classroom cement structure is both the required and the expected norm. The same is true for textbooks and materials; with World Bank support, massive textbook production programs have been put in place, with literally tens of millions of books printed, and kits of science materials and other aids have gone out to schools across the country. The schools themselves -- as objects -- become symbols both of educational quality and, more widely, of modernity. The "form" of education rather than its "content" becomes dominant.

With so many children now absorbed into primary schools, the attention of both the public and the government has swung to issues of output as indicators of quality. School leaving examinations, once nationally-produced, were placed in the hands of local schools and districts in the 1970's. A separate test was given for entry into public and the more prestigious private secondary schools; this test was conducted across a district and thus was considered relatively fair. The school-leaving examinations, on the other hand, were notoriously skewed, with pass rates invariably above 95%. What was important, in other words, was that teachers and schools maintained their reputations and that almost all children got school-leaving certificates, more symbolic of endurance in the system than useful for employment. (In 1985 the local examinations were replaced with a national examination for academic subjects and pancasila; results on this examination function as entry marks for public and more prestigious private secondary schools.)

These examinations and, more and more, the school's ability to get its graduates into the best secondary schools are extremely important signs of good education. Outputs as measured by scores on tests and by percentages of graduates entering secondary school are thus valued by parents and teachers alike, and because the examinations are based largely on the national syllabuses of examinable subjects, the education system believes that the thorough coverage of curricular units in classrooms will guarantee good results on tests. And though the current curriculum is considerably simplified from that in the past, educators generally admit that it is still too complex and detailed for average Indonesian teaching conditions.

A more academic stream within Indonesian education, while admitting the importance of inputs and outputs as measures of quality, believes that much more attention should be given to issues of process. Especially in a society which values so highly the inculcation of

attitudes and values appropriate both to the process of modernization and to the creation of Pancasila man, these educators argue that the nature of teaching-learning interactions, the relationships between teachers and their pupils, and the affective outcomes of education are particularly important. The content of curricula and the relative "modernity" of buildings and textbooks become less important than the ways in which children are taught, the types of thinking and action encouraged, and the sense of independence, responsibility, and cooperativeness engendered.

Because different actors inside and outside the education system have different perceptions concerning what is "good" education; because these perceptions are seldom made explicit in concrete statements of preference or bias; and because the public rhetoric that results is often quite different for different audiences, there is considerable confusion and uncertainty in Indonesia concerning educational quality. Parents believe good education leads to high marks, more education, and good jobs; teachers and headmasters, sharing much of this opinion, believe that good education is the achievement of curricular targets; bureaucrats, especially those at higher levels, believe good education means solidly built, visible schools in every community and textbooks in the hand of every pupil; politicians believe it to be the creator of a modern, Pancasila society; and academics feel it means a flexible, democratic, and motivating learning experience.

Uncertainty over the definition of good education leads to uncertainty over what teachers can, and should be expected to, do. Believers in the input-output model, which assumes that good facilities and materials will lead to good results, see teachers as mechanics or technicians, putting the necessary pieces together to get the output desired. Such teachers require relatively little training in the curricula of the primary school. Since it is assumed that the basic skills of such teachers are limited, curricular materials are made teacher-proof. This is what happened in PPSP and, to a lesser extent, at least in its early days, in PAMONG. Even if the curricula and syllabuses allowed some flexibility and individuality for teachers in these innovations, the modules, juklaks, and teachers' guides ensured that certain standard steps were followed and the basic lesson plans taught. History shows that teachers were able to take considerable advantage of what freedom was allowed and that under experimental and well-supervised conditions they were motivated, creative, and able to improve their teaching and match it to the innovation's elements. But evidence also seems clear that once outside of the experimental condition -- as in the less-controlled PAMONG schools of Bali or, even more so, in the small schools of Kalimantan once they came under the supervision of the Directorate of Primary Education and local officials -- motivation was lost, creativity weakened, and instructional skills deteriorated. The innovation's methods, let alone its underlying assumptions, had not been deeply internalized by the teachers. This is not surprising given the difficult conditions and meagre rewards of teaching in rural Indonesia.

CBSA has attempted to fight against this tendency by quite clearly placing faith in teachers to uncover their own problems, suggest and experiment with their own solutions to these problems, collaborate with their peers in improving the quality of teaching and of schools, and thus to increase their own ability to teach better. Here, too, however, evidence is disappointing. Again, in the original pilot schools and in those which have been monitored by Balitbang and, in some cases, by provincial task forces in charge of the project's replication, high levels of motivation, creativity, and skill have been maintained. But in other areas, particularly in those places where monitoring has decreased in frequency or was never really implemented in the first place, such outcomes have not been the rule.

The result of conflicting evidence has been conflicting views on how far teachers are able to take advantage of -- and even become the driving force behind -- innovation. The officials of the Ministry and the representatives of the donors agencies which assist the teacher training system believe, from the technocratic perspective, that quite large investments in teacher training -- new institutions, more training for tutors, new curricula, new facilities and materials -- will enable the system to train, and re-train, teachers so that they know the required content more thoroughly and can teach it, and continue to teach it, more effectively. There is little evidence, however, to show that this is so.

On the other hand, the staff of Balitbang and of many teacher training universities (which do not train primary school teachers) believe that investment in national, standardized reforms based largely on better facilities and more content training will not make a better teacher. They believe instead, from a more cultural perspective of change, that more localized, participatory, individualized training activities can succeed by drawing upon the Indonesian teacher's latent imagination, dedication, and intelligence. Unfortunately, there is little evidence to show that this is so either.

It could be argued that problems in regard to the trainability and "improvability" of teachers might be focussed on the current generation of practicing teachers. Those who are now producing the graduates of Indonesia's primary schools (and produced those who now appear to be doing increasingly less well in secondary schools and university entrance examinations) are the cohort of teachers hired during the peak of the crash primary school building program of the 1970s. Enrolments were increased at training colleges as standards for entrance and for certification were lowered. Almost any graduate was eventually given a teaching post, often in remote areas where, one could argue, the need for well-trained teachers was particularly great. The 1975 curriculum introduced in the same period was then "taught" to practicing teachers through upgrading programs -- massive at the national scale, with hundreds of thousands of teachers trained, but insignificant at the local scale where any one teacher received, at most, a few weeks of

traditional upgrading in several different subjects. The result of poor and often rushed pre-service training and inadequate in-service training in what turned out to be quite difficult curricula (integrated science, modern mathematics, etc.) has been a generation of teachers which has dominated primary education over the past 10 years and will continue to do so for another 20. The fear is, therefore, that the pool of teachers able to respond enthusiastically and creatively to innovations, of whatever stripe, is very limited, and that those innovations which depend particularly on the inherent imagination and intelligence of the teaching force will have little chance of success.

D. Indonesia's Heavy Hands

There is one final set of elements which has made the process of innovation in Indonesia a particularly difficult one. This is what could be called the "heavy hands" of Indonesia's education system. These are the apparently permanent, immutable, and immovable aspects of the system which no amount of creative intervention, or investment, or goodwill seems to be able to improve. They are the heavy hands of the sheer size of the education system, of its administrative dualism, and of various constraints present in Indonesian culture.

Any system of almost 30 million pupils and over 1 million teachers cannot be made to turn on a dime; as one research manager put it, the system is like a large elephant which has to be walked for miles to get it to move in a different direction. Given the traditional top-down style of change, any new curriculum takes years to plan and even longer to implement and should, in theory, lead to rapid and complementary changes in textbooks, teacher training, and examinations. Such changes, however, are very expensive and, in a country such as Indonesia, never rapid. Reforms in such a large and inflexible system are therefore difficult to implement in any genuine manner and therefore are more likely to end up as symbols and ritual (form) rather than as reality (substance). Even if changes are taken seriously, the time taken to implement them may make many of their components useless. A new curriculum is proclaimed but the textbooks to match it appear years later; the teacher training institutions (managed by another part of the Ministry and dominated by tutors and administrators trained in quite different traditions) may pay only lip service to the reforms; and the examinations, based on popular images of what good education is and developed by yet other parts and levels of the bureaucracy, may never catch up to reforms introduced elsewhere in the system.

Even more intractable -- because it is based on the always constant but ever-shifting ground of politics and power in Indonesia -- is the administrative dualism which exists in primary education. The Ministry of Education trains teachers, writes books, and prepares exams; the Ministry of Internal Affairs hires, pays, and assigns the teachers to their schools and supervises school finance and management. The lack of

a genuine national system of education (made even more complicated by the 13% or so of pupils in Islamic schools managed by yet another Ministry) means not only that administration is complicated but also that the teachers themselves have two masters and never a clear idea of which to follow. The issue is a particularly difficult one in those provinces where officials of both ministries work at the sub-district level, each with its only followers among teachers, its own money for upgrading, its own vision of what good education really is, and (in some cases) its own set of charges for services rendered.

Though such parallel bureaucracies can cooperate within any particular district, one hears much more often of conflict. Teachers trained by the Ministry of Education and Culture in the use of PAMONG modules in small schools are transferred to regular schools and replaced by teachers who never have received the proper training. Teachers being urged by the Ministry of Education and Culture to individualize their instruction and to break away from rote learning and objective tests, are encouraged to buy question-and-answer books published by the local office of the Ministry of Internal Affairs. And on and on. Though politicians and decision-makers have for years admitted that such dualism is dysfunctional, the role of the primary school teacher in shaping local social (and therefore political) attitudes and in encouraging (or not) local development, and the funds generated from local teachers for services rendered by local officials, make either Ministry (but particularly the Ministry of Internal Affairs) reluctant to surrender its control.

Partly because of the structural problems of the bureaucracy and the complications of top-down reform in a society as large as Indonesia's, the CBSA project quite consciously opted for more local initiative and responsibility -- the decentralization (in spirit, if not in fact) of curriculum design, lesson planning, and teacher upgrading to the cluster, school, and individual teacher level. Here, however, the final heavy hand -- that of culture -- wields its power. In Javanese society at least, where the innovations described above have been made or broken, a teacher -- especially one not sure of his or her own training and skills -- does not stand out from the crowd, does not take initiative alone, and does not easily share whatever knowledge or skill is possessed with others less fortunate. To maintain standard practice, to do one's work alone in a self-contained classroom (a right gained through the long-sought certificate), unobserved either by colleagues or by superiors; to make changes only when instructed to do so and then only to the point where official recognition of the change is given; and therefore not to risk or to innovate is the unfortunate norm in Indonesian education. In such a context, it is not surprising that the goals and methods of CBSA at the national level -- for individualized and imaginative solutions to problems and for a greater variety of teaching methods and objectives based on school and classroom needs -- get so completely distorted.

* *

"...educational innovation is not what it seems -- if it ever were! It is not a magic short cut to an educational wonderland. It is not a bag of tricks easy to apply to troubled schools systems. It is difficult, time-consuming, energy-exhausting, and often costly. There is no single easy way to improve the teaching-learning process in our schools." (Dalin 1978:8)

In the last 20 years of experience with educational innovation in Indonesia, much has been accomplished and much has been learned. The energy, dedication, and creativity of Indonesian innovators and the nature of their ideas have succeeded in influencing profoundly the general structure of the system and the organization of curricula, syllabuses, and lesson units. But each innovation described above expected also to alter significantly the educational process -- how teachers teach, how children learn, and how all of the various actors in this process act together to produce results necessary for Indonesia's further development. This is where the problems occurred -- in the attempt to change once and for all the nature of teaching and learning, to one more child-centred, more individualized, and more consciously interactive (between child and module, child and child, child and teacher, and child and environment).

A change of such scope and scale does not occur easily anywhere in the world, and even less so in a country as complex and large as Indonesia. These very factors make the role of the individual teacher and headmaster in educational change so important; their internalization of the new ways of doing things is neither quickly achieved nor easily sustained. "It is individuals who have to develop new meanings, and these individuals are insignificant parts of a gigantic, loosely organized, complex, messy social system which contains myriad different subjective worlds" (Fullan 1982:79).

It is related to this issue that Indonesian educators have learned most about the process of educational change. Reform based in schools; developed, adapted, and sustained in collaborative fashion among the school's major actors; more cognizant of the social and cultural specificities of each region and school; and more clearly "owned" and controlled by those "insignificant" parts of the messy whole will more likely succeed. The question for Indonesia as for every other country embarking on a process of reform is how lessons such as these can be helped to fit within the financial, social, and political imperatives which often make very difficult the implementation of a more flexible, interactive, and ultimately "cultural" approach to educational change.

REFERENCES

ADAMS, Raymond S. (1981), The Process of Educational Innovation: An International Perspective, Paris: UNESCO

BALITBANG (1985), Penilaian Kegiatan Uji Coba "Peningkatan Mutu Pendidikan di Sekolah Dasar Melalui Pelayanan Profesional Kepada Guru" (Model Supervisi Pendidikan) di Kabupaten Cianjur. Buku I. Hasil Penilaian, Jakarta: Departemen Pendidikan dan Kebudayaan

BP3K (1975), Master Design: Pembaharuan Pendidikan Melalui Proyek-Proyek Perintis Sekolah Pembangunan, Jakarta: Departemen Pendidikan dan Kebudayaan

BP3K (1981), Pra-evaluasi PPSP: Latar Belakang, Prosedur dan Beberapa Hasil Yang Telah Dicapai, Jakarta: Departemen Pendidikan dan Kebudayaan.

BP3K (1981a), "Inti Laporan Hasil Pra-Evaluasi Sistem PPSP", Jakarta: Departemen Pendidikan dan Kebudayaan

BRAY, Mark (1987), School Clusters in the Third World: Making Them Work, Paris: UNESCO-UNICEF Co-operative Programme

COHN, Elchanan and Richard ROSSMILLER (1987), "Research on Effective Schools: Implications for Less-Developed Countries", Discussion Paper No.EDT52, Washington: Education and Training Department, World Bank

COOMBS, Philip (1968), The World Educational Crisis: A Systems Analysis, New York: Oxford University Press

COWELL, Richard, and Donald HOLSINGER (1983), "Indonesia's Small Schools Project: A Fresh Look at a Persistent Project", mimeo

CUMMINGS, William K. (1986), Low-Cost Primary Education : Implementing an Innovation in Six Nations, Ottawa: International Development Research Centre

C.V. SEMMA (n.d.), Mari Belajar Kelompok: Untuk Menginkatkan CBSA. Soal2 Untuk Belajar Kelompok, Malang

DALIN, Per (1978), Limits to Educational Change, London: MacMillan

EDUCATIONAL DEVELOPMENT AND RESEARCH CENTRE (n.d.), Micro Studies Report: The Management of PAMONG Primary School System, 1980- 1981, Surakarta: University of Surakarta Sebelas Maret

FAURE, Edgar (1972), Learning To Be: The World of Education Today and Tomorrow, Paris: UNESCO

FULLAN, Michael (1982), The Meaning of Educational Change, Toronto: OISE Press

FULLAN, Michael (1985), "Change Processes and Strategies at the Local Level", The Elementary School Journal, vol. 85, no.3:391-421

GARDNER, R. (1986), "The Quality of Teaching in Lesser Developed Countries: Alternative Models. A Case Study: Qualitative Improvement Through Professional Support: The Cianjur Model", paper delivered at IMTEC annual conference, Bali, Indonesia

GARDNER, R. (1987), "Report of a Consultancy in Indonesia", October 1986 - January 1987, mimeo

GEERTZ, Clifford (1963), Agricultural Involution: The Process of Ecological Change in Indonesia, Berkeley: University of California Press

HARBISON, Frederick (1964), Education, Manpower, and Economic Growth: Strategies of Human Resource Development, New York: McGraw-Hill

HARIANTI Diah (1983), "SD Pamong di dalam Sekolah: Hasil Pandangan Mata Selama 2 Bulan", Surakarta: UPT PAMONG, Universitas Negri Sebelas Maret

HAVELOCK, R.G., and HUBERMAN, A.M. (1977), Solving Educational Problems: the Theory and Reality of Innovation in Developing Countries, Paris: UNESCO

HAWES, Hugh (1982), "Professional Support for Teachers in Schools: An Indonesian Case Study", EDC Occasional Papers No.3., London: University of London Institute of Education

HAWES, Hugh (1986), "The Project: Qualitative Support for Teachers in Primary Schools. The Next Step", discussion paper, London: University of London Institute of Education

HAWES, Hugh (1987), "Report of Visit to Indonesia 21 June - 16 July 1987", mimeo

HOLSINGER, D.B. (1981), "PPSP Summative Evaluation", Jakarta: UNESCO

HORST, Donald (1984), "Final Evaluation Report on the PAMONG Self-Instructional Learning System Project (SILS)", McLean, Virginia: Institute of International Research

HOUSE, Ernest R. (1979), "Three Perspectives on Innovation - the Technological, the Political, and the Cultural", draft, Champagne-Urbana: University of Illinois

HURST, Paul (1978), "Implementing Innovatory Projects: A Critical Review of the Literature", Washington, D.C.: World Bank Diversified Secondary Curriculum Study

IEES (Improving the Efficiency of Educational Systems) (1986), Indonesia: Education and Human Resources Sector Review, (3 Volumes), Tallahassee, Florida: Florida State University

JIYONO (1987), "Penelitian Kemampuan Guru Tentang IPA, dan Sarana Pelajaran IPA di Sekolah Dasar (Tahun 1985/1986): Laporan Eksekutif", Jakarta: BP3K, Departemen Pendidikan dan Kebudayaan

KANWIL DEPDIKBUD (Propinsi Jatim Bidang Pendidikan Dasar (1988), "Pembinaan dan Pengembangan Pendidikan Dasar Propinsi Jawa Timur", Surabaya

KOMPAS (1988), "Dirjen Dikti: Sangat Rendah, Kemampuan Peserta Sipenmaru", Feb.11, p.1

KUSTORO, Budi (1986), Proses Belajar-Mengajar Bidang Studi Matematika di Sekolah Dasar Kecil Tumbang Rungan Kalimantan Tengah, Jakarta: BP3K, Departemen Pendidikan dan Kebudayaan

LEWIN, Keith (1985), "Quality in Question: A New Agenda for Curriculum Reform in Developing Countries", Comparative Education, vol.21, no.2: 117-133

LILLIS, Kevin M. (1985), "Processes of Secondary Curriculum Innovation in Kenya", Comparative Education Review, vol.29, No.1: 80-96

MARSANDI Wahjowidodo (1986), Proses Belajar Mengajar Bidang Studi Ilmu Pengetahuan Alam (IPA) di SD Kecil Tumbang Rungan Kalimantan Tengah, Jakarta: BP3K3, Departemen Pendidikan dan Kebudayaan

MARSANDI Wahjowidodo, et al (1984), "Laporan Inti Evaluasi Sistem PPSP", Jakarta: BP3K, Departemen Pendidikan dan Kebudayaan

MASHURI (1970), "Basic Memorandum on Education", Jakarta: Ministry of Education and Culture

MIDDLETON, John, et al (1987), "Designing Management for Uncertainty and Innovation in Education Projects", Discussion Paper No.EDT75, Washington: Education and Training Department, World Bank

MINISTRY of EDUCATION and CULTURE (1987), Education in Indonesia in Brief, Jakarta

MOEGIADI, et al (1985), "Qualitative Improvement of Primary Education Through Professional Support for the Teachers: Training Workshop for Educational Administrators, Supervisors, Heads and Teachers of Primary Schools and Teacher Training Colleges", Jakarta: Office of Educational and Cultural Research and Development, Ministry of Education and Culture

MORGAN, Robert (n.d.), "Pamong and the Changing State of the Art in Instructional Development", (mimeo)

MORRIS, Paul (1985), "Teachers' Perceptions of the Barriers to the Implementation of a Pedagogic Innovation: A South East Asian Case Study", in International Review of Education, vol. 31, no.1: 3-18

NASUTION, N. et al (1979), "Program dan Pengembangan Sistem Penilaian pada Proyek Perintis Sekolah Pembangunan", Jakarta: Departemen Pendidikan dan Kebudayaan

NICHOLS, Daryl and D. Russell DILTS (1984), Final Contractors' Report. Part II: Calendar of Events. Self-Instructional Learning System, McLean, Virginia: Institute of International Research

NIELSEN, Dean, and Doran BERNARD (1983), "Final Report on USAID/Institute for International Research, Inc. contract for project on 'Self- Instructional Learning System'", McLean, Virginia: Institute of International Research

NIELSEN, Dean, and William CUMMINGS (n.d.), "The Impact of 'IMPACT': A Study of the Dissemination of an Innovation in Six Countries"

PALGUNADI (1983), "Laporan Evaluasi Terhadap Sikap Murid SD Pamong dan SD Reguler di Kabupaten Gianyar Bali dan Karanganyar Solo Tahun Ajaran 1982/83", Surakarta: Universitas Negri Sebelas Maret

POSTLETHWAITE, T.N. (1981), "Indonesia: Assignment Report", Jakarta: Ministry of Education and Culture

PROGRAM PENGEMBANGAN SISTEM SD PAMONG (1981), "Petunjuk Umum Pelaksanaan Penelolaan SD. PAMONG (Edisi II)", Surakarta: Universitas Negri Sebelas Maret

REPELITA IV (Fourth Five-Year Development Plan) (1983), Jakarta, Government of Indonesia

RESPATI, Boorham (1983), "IMPACT: Reaching the Out-Of-School Youth", in Socrates, Jose, pp.95-98

RONDINELLI, et al (1989), "Contingency Planning for Innovative Projects: Designing Education Reforms in Developing Countries", in Journal of the American Planning Association, vol. 35, no. 1, pp. 45-56

SANTOSO Hamidjoyo (1973), "Pembaharuan Pendidikan Melalui Proyek-Proyek Perintis Sekolah Pembangunan", presentation to Komisi IX of Parliament, Jakarta

SEMIAWAN, Conny, et al (1987), CBSA, Bagaimana Membina Guru Secara Profesional?, Jakarta: Balitbang, Departemen Pendidikan dan Kebudayaan

SETIJADI (1979), "Laporan Ketua BP3K Tentang Latarbelakang, Tujuan, Ruang Lingkup, Strategi, dan Kemajuan - Kemajuan yang Telah Dicapai Dalam Pelaksanaan PPSP", Jakarta: BP3K, Departemen Pendidikan dan Kebudayaan

SETIJADI, and Matt SEYMOUR (1982), "The Second Annual Evaluation of the Self-Instructional Learning Project (497-0280)", Jakarta: USAID

SHAEFFER, Sheldon (1979), Schooling in a Developing Society: A Case Study of Primary Education, Ph.D. dissertation, Stanford University

SIMPSON, Donald G. (1973), "A Tide in the Affairs of Men", paper presented at Innotech Regional Seminar on Use of Community Resources in Providing Low Cost Primary Education, Saigon

SINGLETON, John (1987), "Extension of Project PAMONG: Social Soundness Analysis", draft, typed report prepared for USAID

SLAMETTO, et al (1981), Laporan Monitoring dan Evaluasi Formatif Penerapan Sistem SD PAMONG Di Gianyar-Bali Periode 1, Surakarta: UPT Pamong, Universitas Negri Sebelas Maret

SOCRATES, Jose, ed. (1983), The IMPACT System of Mass Primary Education, Quezon City, Philippines: SEAMEO Regional Centre for Educational Innovation and Technology (INNOTECH)

SOEDIJARTO (1975), "Proyek Pembinaan Experimentasi Sekolah-Sekolah Perintis", Jakarta: Departemen Pendidikan dan Kebudayaan

SOEDIJARTO (1977), "The Modular Instructional System as the Teaching-Learning Strategy in the Indonesian Development School", seminar paper, Paris: International Institute for Educational Planning

SOEDIJARTO, et al (1979), "Seminar on Supervision and the Quality of Primary Education in Indonesia", Jakarta: Office of Educational and Cultural Research and Development (BP3K)

SOEWONO (1986), "Pedoman Pembinaan dan Peningkatan Mutu Pendidikan Dasar Melalui Sistim Gugus Sekolah dan Komisi Pendidikan Dasar Dalam Lingkungan Kantor Wilayah Departemen Pendidikan dan Kebudayaan Propinsi Nusa Tenggara Barat", Mataram: Kantor Wilayah Depdikbud

SOEWONO (1987), "Strategi Perintisan, Diseminasi dan Pembinaan CBSA pada Sekolah Dasar Propinsi Nusa Tenggara Barat Tahun 1985-1992", Mataram: Kantor Wilayah Depdikbud

SUB-DINAS PENDIDIKAN DASAR DAN SUBSIDI/BANTUAN (1987), "Data dan Informasi Sekolah Dasar di Jawa Timur Tahun 1987", Surabaya: Dinas P & K Daerah Propinsi Tingkat I Jawa Timur

SUHARDJO Danusastro, et al (1987), History of Pamong, Surakarta: UPT Pamong, Universitas Negri Sebelas Maret

SUWARTONO, M., et al (1985), Penelitian dan Pengembangan SD Kecil di Indonesia: Laporan Akhir, Jakarta: Balitbang Dikbud, UNS, and UNICEF

TANGYONG, Agus (1981), "Inservice Primary Teacher Education: Qualitative Improvement of Elementary School Through Professional Support for Their Teachers", Jakarta: BP3K

TANGYONG, Agus, et al (1986), "Findings and Outcomes of Project on Raising Achievement Level of Children in Primary Education", Jakarta: Balitbang Dikbud

THEISEN, Gary L. (1987), "A Summary Description of the Self-Instructional Learning System Project (PAMONG): Solo and Bali, Indonesia", draft, mimeo

THOMAS, R. Murray (1981), "Reaction to the 'Inti Laporan Hasil Pra-Evaluasi Sistem PPSP'", memo to Dr. Conny Semiawan of August 28

TIM EVALUASI SISTEM PPSP (1989), Hasil Evaluasi Sistem PPSP, Jakarta: Departemen Pendidikan dan Kebudayaan

UNDP/UNESCO Joint Evaluation of Educational Innovation and Reform Projects (n.d.), "Educational Innovation and Reform", Evaluation Study No.7, UNESCO/UNDP

UPT PAMONG-UNS (n.d.), Laporan Monitoring Evaluasi Formatif Pelaksanaan SD PAMONG. Periode 2, Surakarta: Universitas Negri Sebelas Maret

VERSPOOR, Adriaan (1989), "Pathways to Change: Improving the Quality of Education in Developing Countries", Discussion Paper 53, Washington, D.C.: World Bank

WARHITRI, et al (1981), "Report on Evaluation of Student's Achievement of IMPACT/PAMONG System", Solo: Educational Research and Development Centre, State University of Surakarta "Sebelas Maret

WEILER, Hans N. (1979), "Notes on the Comparative Study of Educational Innovation", Project Report No.79-A12, Stanford, California: Institute for Research on Educational Finance and Governance, Stanford University

WINDHAM, Douglas M. (n.d.), "The Role of Cost Analysis in the Curriculum Dissemination Decision", paper presented at annual meeting of the Comparative and International Education Society, Florida State University

WURYO, Kasmiran (1982), SD PAMONG Development Research: A Case Study, Jakarta